

10 Annexes

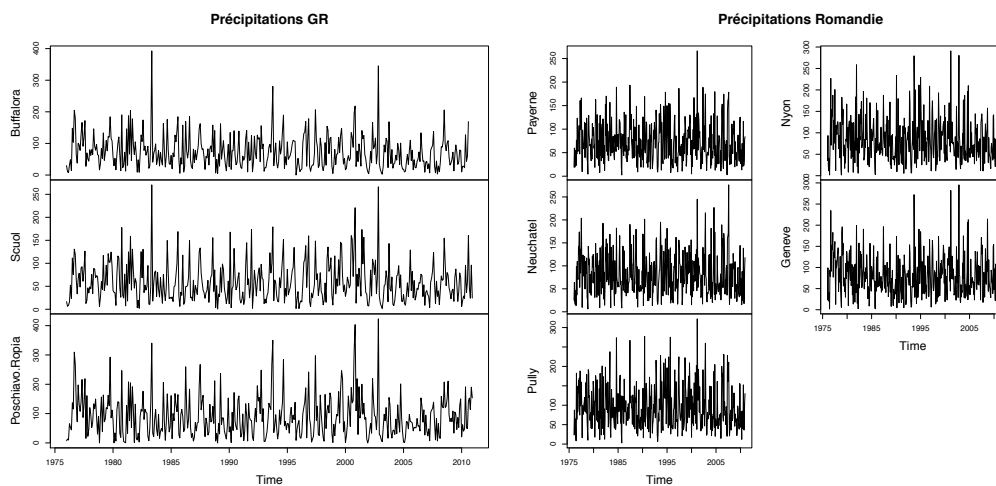
A Annexes de la partie 3 et 4

A.1 Stations utilisées

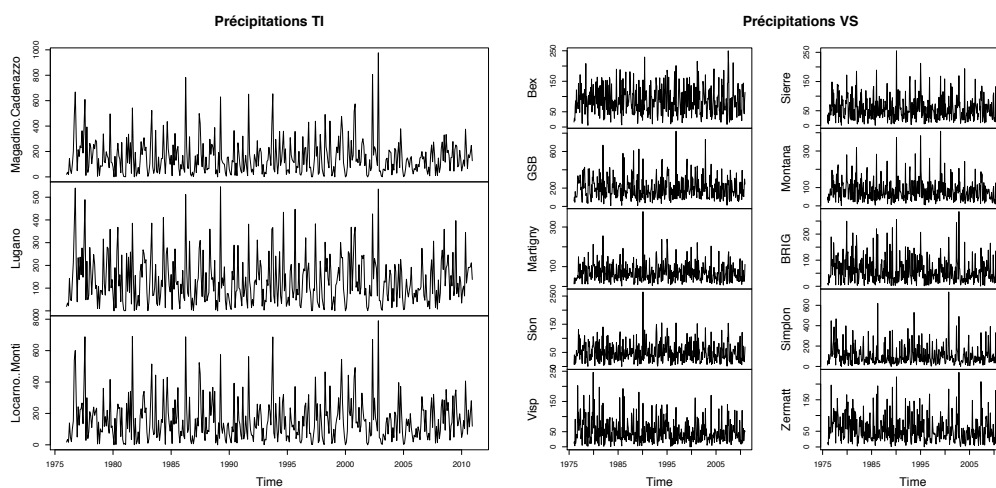
TABLE 5 – Stations utilisées par canton

Zone de la station	Nom de la station	Source
Valais	St-Bernard	CREALP
Valais	Bex	CREALP
Valais	Martigny	CREALP
Valais	Sion	CREALP
Valais	Visp	CREALP
Valais	Sierre	CREALP
Valais	Montana	CREALP
Valais	Brig	CREALP
Valais	Simplon	CREALP
Valais	Zermatt	CliMap MeteoSuisse
Plateau Romand	Payerne	CliMap MeteoSuisse
Plateau Romand	Neuchatel	CliMap MeteoSuisse
Plateau Romand	Pully	CliMap MeteoSuisse
Plateau Romand	Nyon	CliMap MeteoSuisse
Plateau Romand	Geneve	CliMap MeteoSuisse
Suisse centrale Ouest	St-Gall	CliMap MeteoSuisse
Suisse centrale Ouest	Güttingen	CliMap MeteoSuisse
Suisse centrale Ouest	Schauffausen	CliMap MeteoSuisse
Suisse centrale Ouest	Aadorf	CliMap MeteoSuisse
Suisse centrale Ouest	Zurich Kloten	CliMap MeteoSuisse
Suisse centrale Ouest	Wadenswil	CliMap MeteoSuisse
Suisse centrale Ouest	Zurich Fluten	CliMap MeteoSuisse
Suisse centrale Ouest	Wadenswil	CliMap MeteoSuisse
Tessin	Magadino/Cadenazzo	CliMap MeteoSuisse
Tessin	Lugano	CliMap MeteoSuisse
Tessin	Locarno /Monti	CliMap MeteoSuisse
Engadine	Poschiavo/Ropia	CliMap MeteoSuisse
Engadine	Buffalora	CliMap MeteoSuisse
Engadine	Scuol	CliMap MeteoSuisse

A.2 Hyétogramme des données brutes pour chaque zone de l'ACP

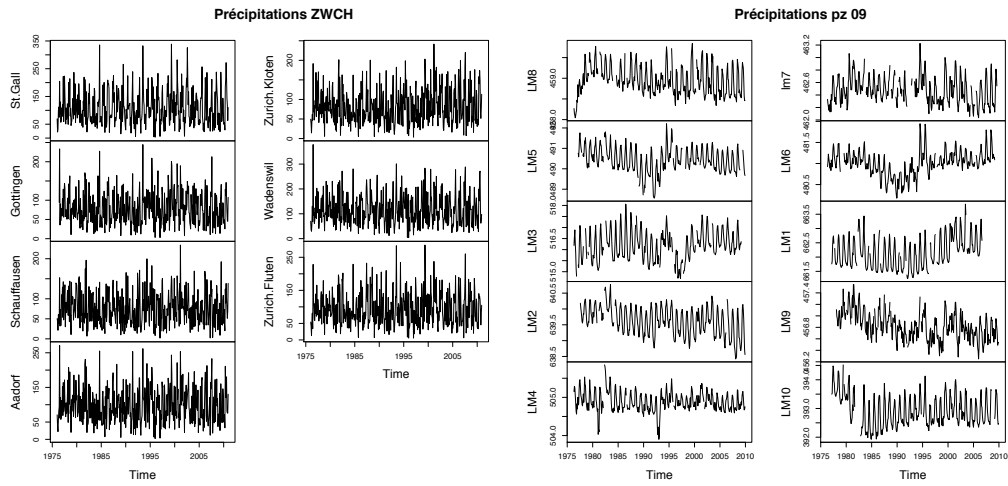


(a) Hyétogramme des données brutes pour l'Engadine (b) Hyétogramme des données brutes pour le Plateau Romand

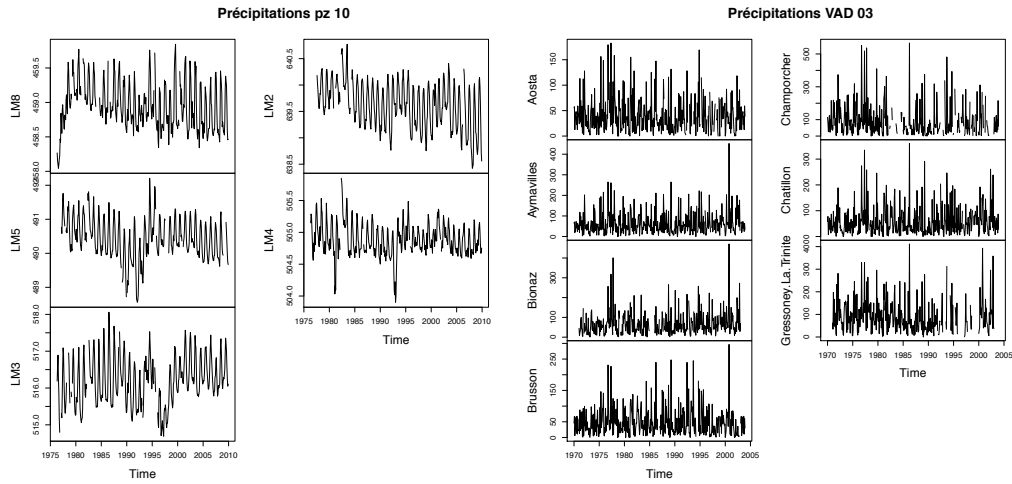


(c) Hyétogramme des données brutes pour le Tessin (d) Hyétogramme des données brutes pour le Valais

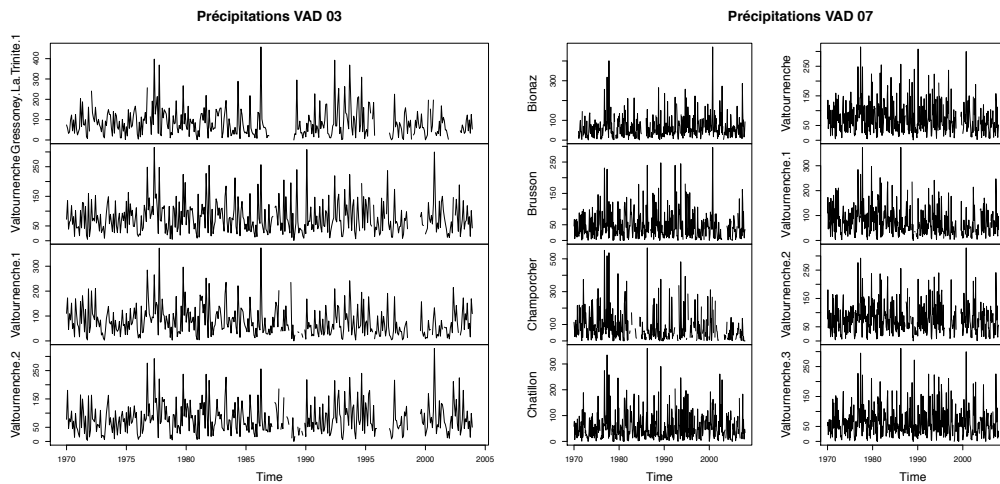
FIGURE 32 – Hyétogrammes des données brutes des zones pour l'ACP



(a) Hyetogramme des données brutes pour le Suisse centrale ouest (b) Hyetogramme des données brutes pour les piézomètres



(c) Hyetogramme des données brutes pour les piézomètres (d) Hyetogramme des données brutes pour les piézomètres



(e) Hyetogramme des données brutes pour les piézomètres (f) Hyetogramme des données brutes pour les piézomètres

FIGURE 33 – Hyetogrammes des données brutes des zones pour l'ACP

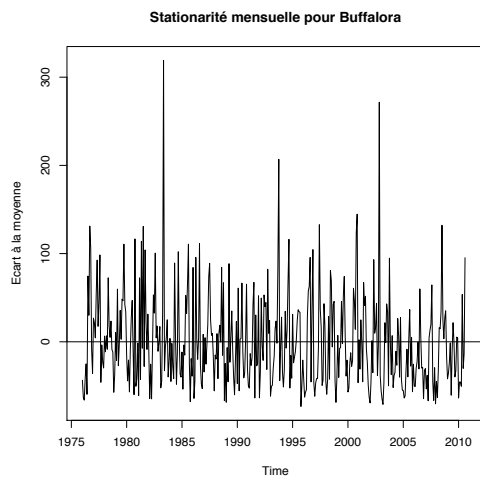
A.3 Abréviations des stations suisses

ENG	Engelberg	BOT	Boligen	KAL	Kalchrain	PUY	Pully
BAS	Basel	BOZ	Bochuz, Orbe	KAS	Kandersteg	RAG	Bad Ragaz
BER	Bern	BRI	Brig	KIE	Kiental	REG	Reigoldswil
CHA	Chamont	BRL	La Br. vine	KLA	Klosters / Aeuja	ROB	Poschiavo / Robbia
GFN	Geneve	BRP	Brusio-Piazzo	KUE	Koessenacht, ZH	ROM	Romont
LUG	Lugano	BSP	Bourg-St-Pierre	LAC	Lachen	SAG	Sattel-Aegeri
SIL	Sagl.Maria	BUC	Buch, SH	LAG	Lagnau i.E.	SAM	Samedan
DAV	Davos	BUE	Buelach	LEU	Leukerbad	SAP	Saifen-Platz
SIO	Sion	BZN	Beznau	LFB	Laufenburg	SAR	Sargans
ZUR	Zurich	CDF	La Chaux-de-Fonds	LON	Longirod	SAX	Salez / Saxerriet
ALS	Altstätten	CEO	Cevio	LSN	Lausanne	SBE	S. Bernardino
ALT	Alt Dorf	CGI	Nyon / Changins	LUN	Lungern	SBO	Stabio
EIN	Einsiedeln	CHU	Chur	LUZ	Luzern	SCE	Schwarzenegg
LOH	Lohn	CLA	Montreux-Clarens	MAG	Magadino / Cadenazzo	SCH	Schleiheim
MUR	Muri	COS	Cossonay	MAR	Les Marecottes	SDO	Spögen-Dorf
NEU	Neuchatel	COU	Couvet	MAS	Marsens	SED	Sedrun
SCU	Scul	DEL	Delenmont	MBA	Marbach	SEM	Sensales
AAF	Aadorf	DIE	Diessenhofen	MDO	Moudon-Origine	SHA	Schaffhausen
AAR	Aarau-Unterefelden	DIS	Disentis / Sedrun	MER	Meringen	SIH	Sihlbrugg
ABE	Aarberg	EBK	Ebnat-Kappel	MES	Mesocco	SIM	Simplon-Dorf
ABO	Adelboden	ECH	Echallens	MEV	Mervelier	SNG	Seengen
AES	Aesch, LU	EKO	Eschikon	MGL	Morgins	SNS	Stans
AFL	Andelfingen	ELM	Eim	MHA	Merishausen	SOG	Soglio
AFT	Affeltrangen	ENT	Entlebuch	MMO	Mormont	SON	Sonogno
AIE	Affoltern im Emmental	EPT	Eptingen	MOB	Montagnier, Bagnes	SPA	Sempach
AIR	Airolo	FLU	Flaehli, LU	MOH	Moehlin	SPZ	St. Peterzell
ANT	Andermatt	FLW	Flawil	MOU	Moutier	SRN	Sarnen
APP	Appenzell	GAD	Gadmen	MSG	Mosogno	STG	St. Gallen
ARB	Arbon	GES	Gersau	MTE	Mottec	STP	St._ckalp
ARI	Arisdorf	GIN	Groeningen	MUB	Muehleberg	SUA	Schaan / Untere Au
ARO	Arosa	GLA	Glarus	MUE	Mürren	SUG	Sulgen
AUB	L' Auberson	GOS	G. schenen	MUT	Murten	SUS	Susch
AVE	Avenches	GRA	Fribourg / Posieux	MVE	Montana	SVG	Savognin
BAM	Bauma	GRC	Graichen	NIE	Niederneunforn	SWA	Schw._alp
BAU	Baulmes	GRH	Grimel Hospiz	OBD	Obstaliden	SZB	Schwarzenburg
BEA	Beatenberg	GSG	Gsteig, Gstaad	OBI	Oberiberg	TAF	Tafers
BEH	Passo del Bernina	GTT	Guttannen	OLI	Olivone	TEU	Teufen
BEX	Bex	GWA	Grindelwald	ORS	Orsieres	THU	Thun
BEY	Belletay	HAI	Salen-Reutenen	OTE	Otelfingen	TIC	Tiefencastel
BIL	Biel/Bienne	HLL	Hallau	OTL	Locarno / Monti	TRO	Trogen
BIN	Binn	HTW	Herbetswil	PAY	Payenne-Ville	TST	Tschertschen
BIZ	Bischofzell	ILH	Illhart	PAY	Payenne	UBB	Unterb._berg
BKI	Brienz-Kienholz	ILZ	Ilanz	PDM	Les Ponts-de-Martel	UNK	Unterkulm
BMU	Beromuenster	INT	Interlaken	PFA	Pfaeffikon	URB	Urnerboden
BNE	Les Brenets	JAU	Jaun	PIG	Pigniu	URN	Urn._sch
		JUS	Jussy	POT	Ponte Tresa	UST	Uster

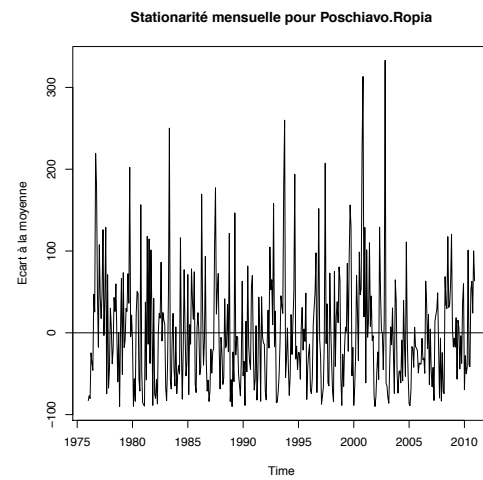
VAR
VEV
VLS
VIS
VSP
VVI
WBR
WCH
WDO
WIN
WIS
WIW
ZER
ZWE

Valeyres-sous-Rances
Vevey
Vals
Visp_1
Visp_2
Vallorbe-Ville
Wil bei Rafz
Wichingen
Wahlendorf
Winterthur-Seen
Wimmis
Witzwil
Zermatt
Zweisimmen

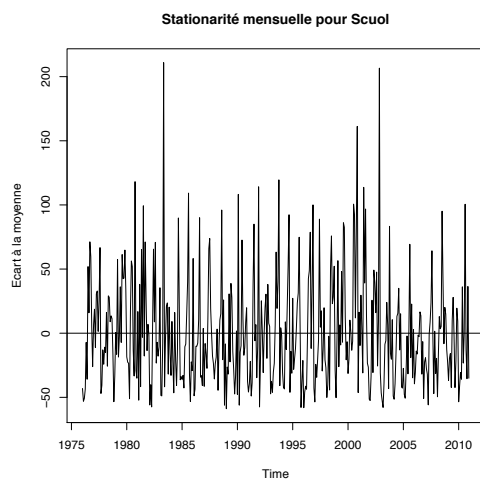
A.4 Stationnarité des données



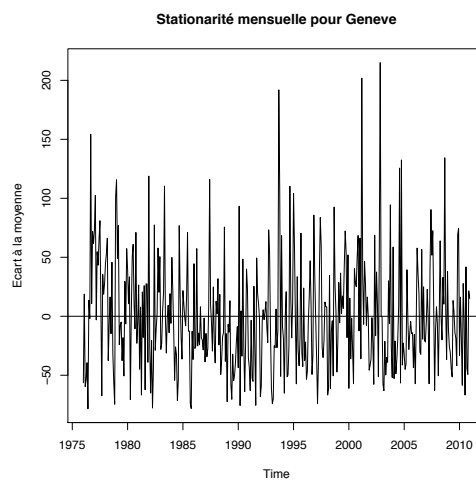
(a) Stationnarité des stations d'Engadine



(b) stationnarité des stations d'Engadine

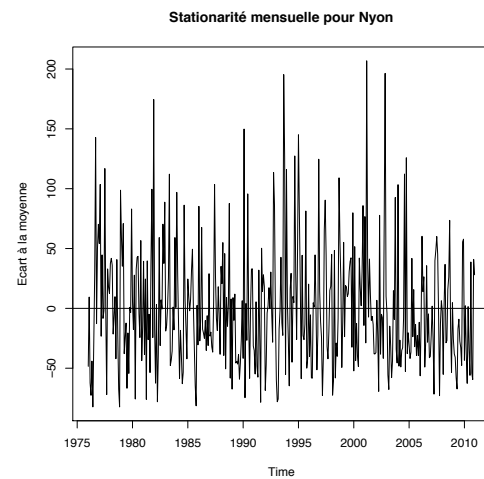
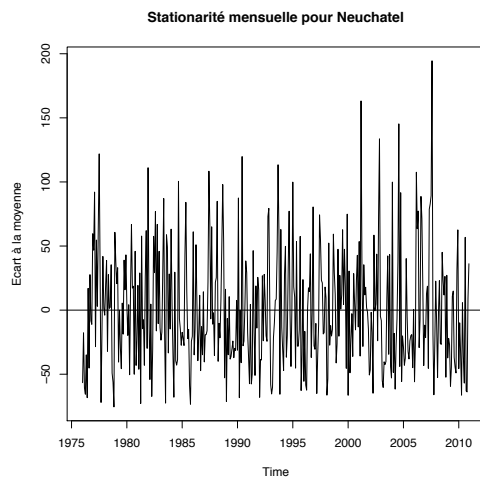


(c) stationnarité des stations d'Engadine

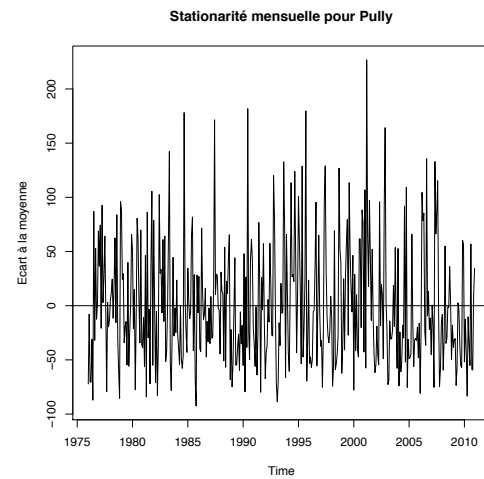
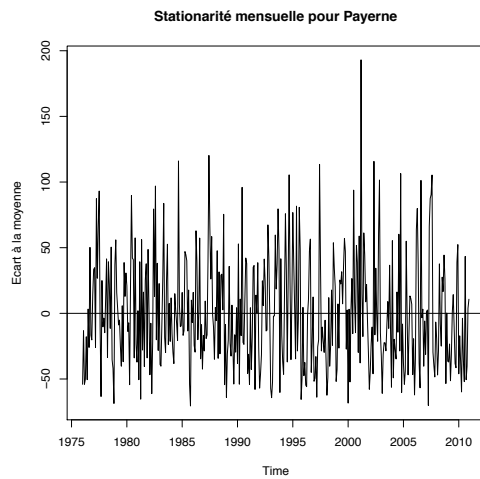


(d) stationnarité des stations du Plateau Romand

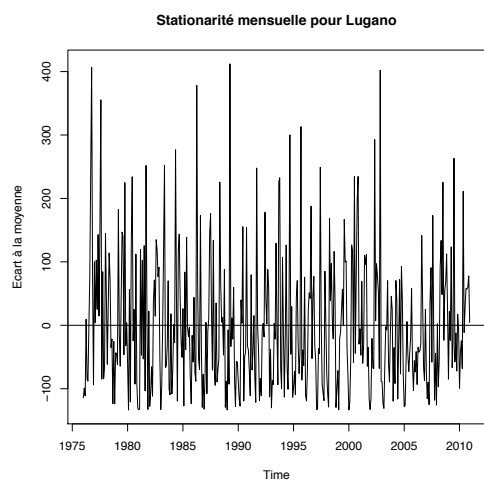
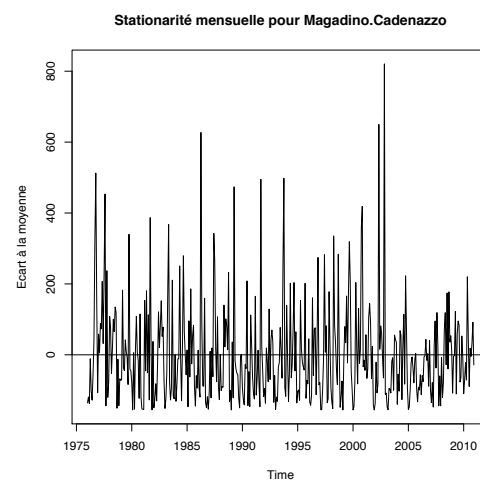
FIGURE 34 – stationnarité des zones choisies



(a) stationnarité des stations du Plateau Ro- (b) stationnarité des stations du Plateau Ro-
mand mand



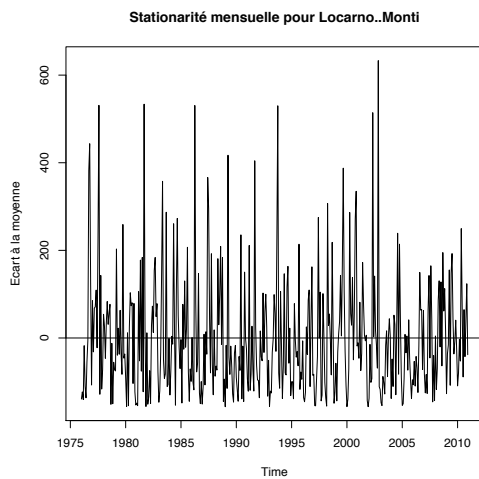
(c) stationnarité des stations du Plateau Ro- (d) stationnarité des stations du Plateau Ro-
mand mand



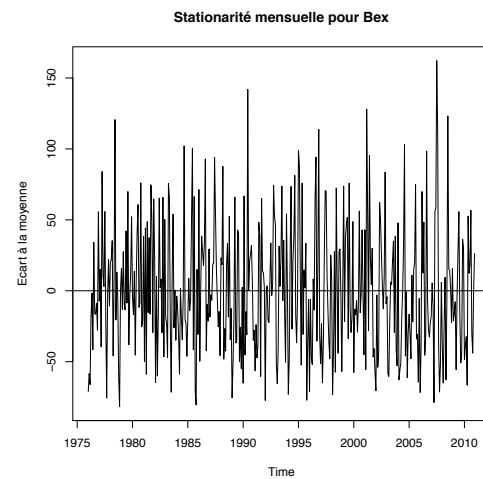
(e) stationnarité des stations du Tessin

(f) stationnarité des stations du Tessin

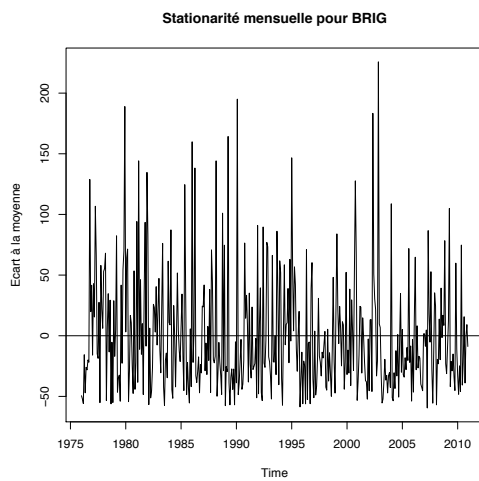
FIGURE 35 – stationnarité des zones choisies



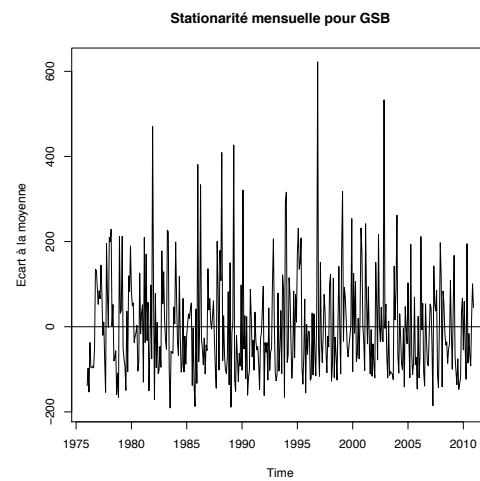
(a) stationnarité des stations du Tessin



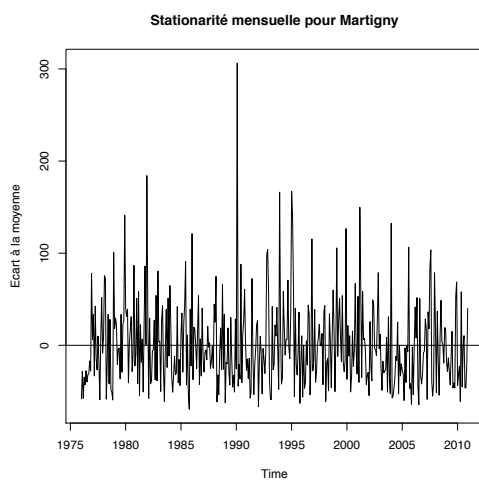
(b) stationnarité des stations du Valais



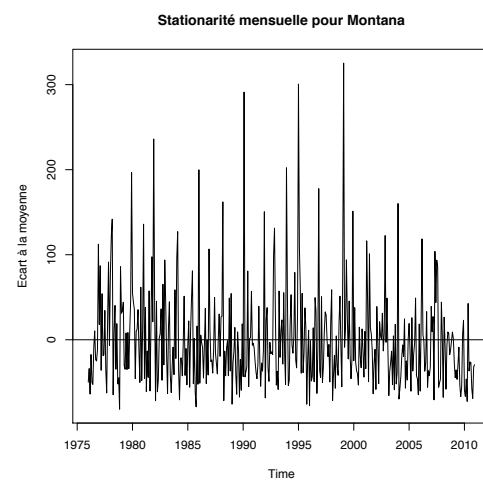
(c) stationnarité des stations du Valais



(d) stationnarité des stations du Valais

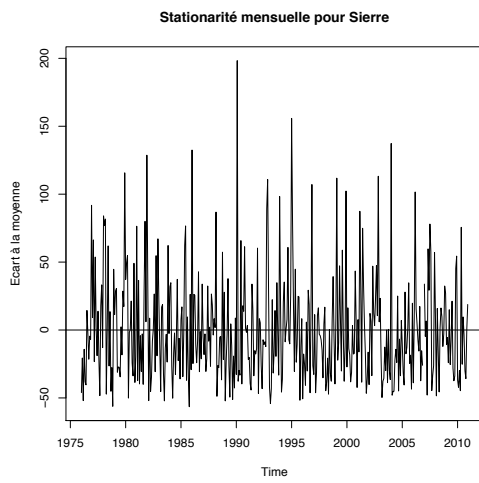


(e) stationnarité des stations du Valais

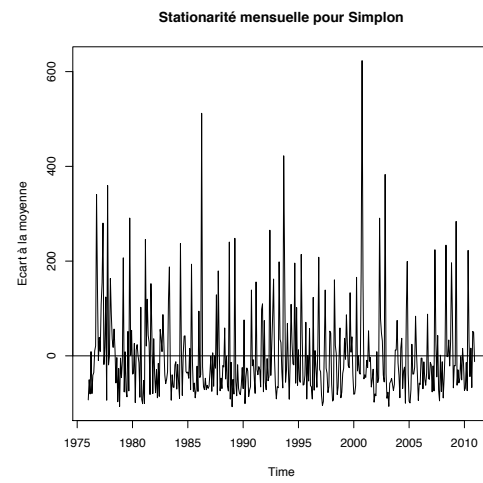


(f) stationnarité des stations du Valais

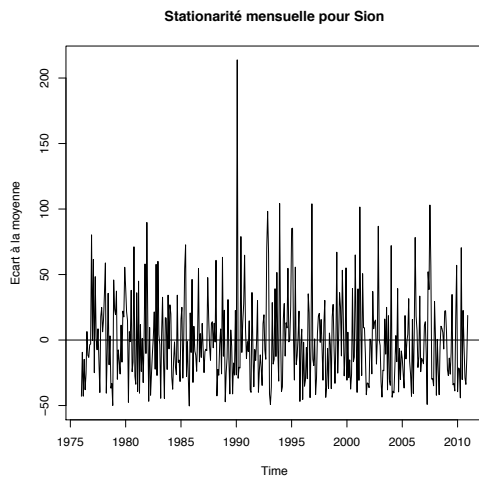
FIGURE 36 – stationnarité des zones choisies



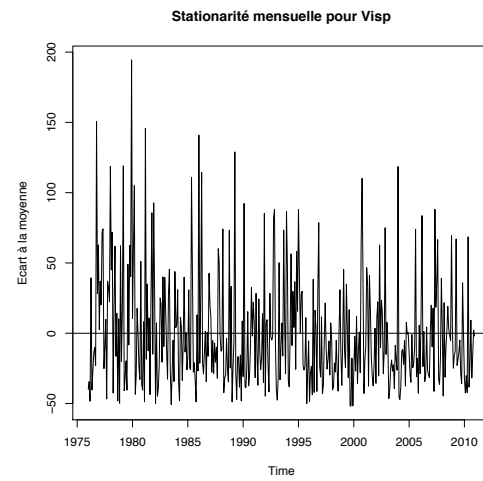
(a) stationnarité des stations du Valais



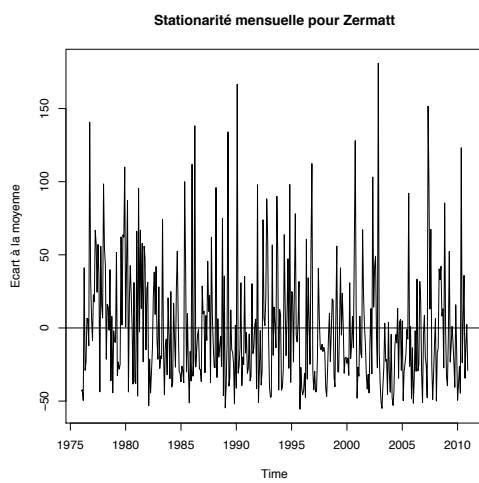
(b) stationnarité des stations du Valais



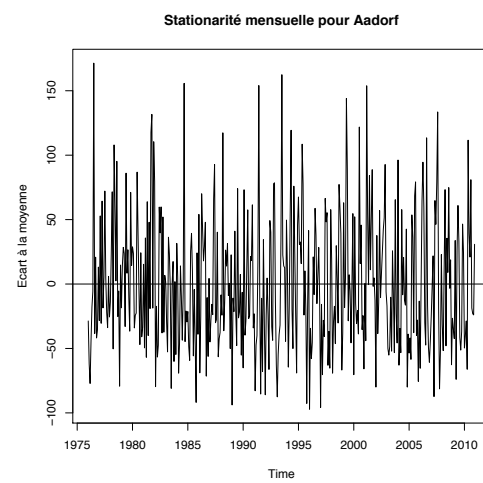
(c) stationnarité des stations du Valais



(d) stationnarité des stations du Valais

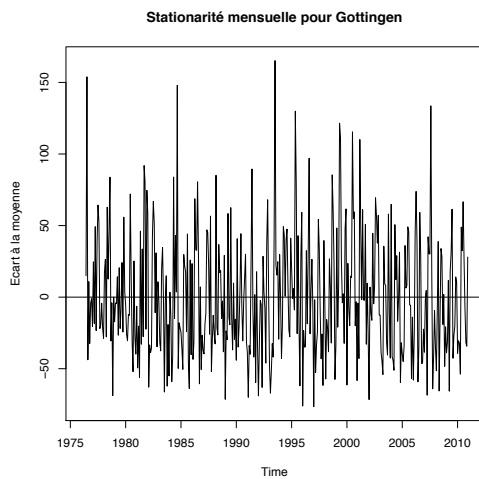


(e) stationnarité des stations du Valais

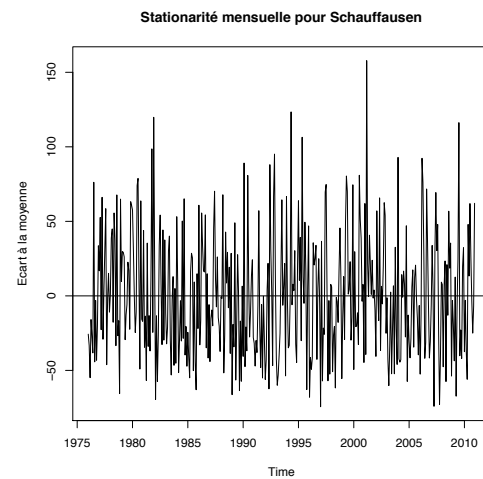


(f) stationnarité des stations du ZWCH

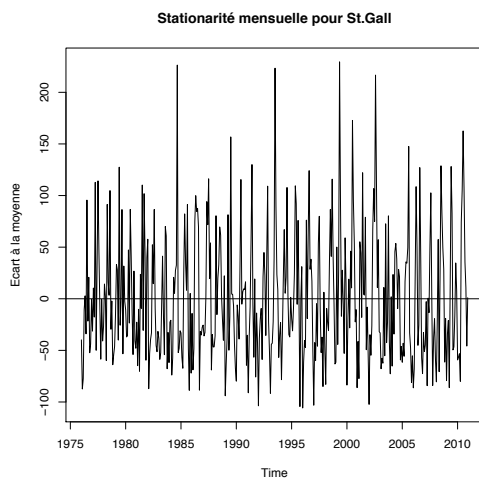
FIGURE 37 – stationnarité des zones choisies



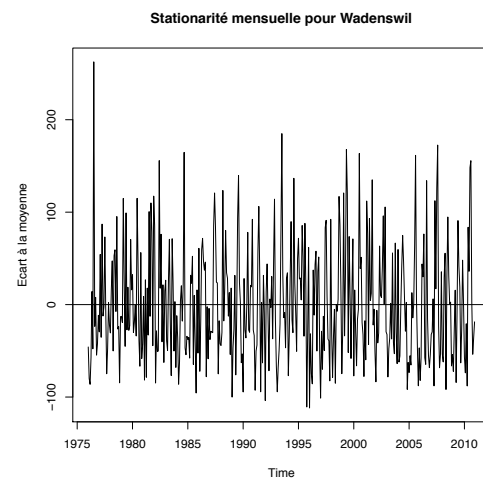
(a) stationnarité des stations du ZWCH



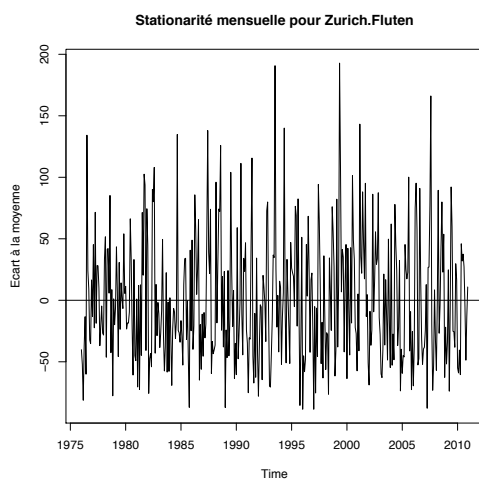
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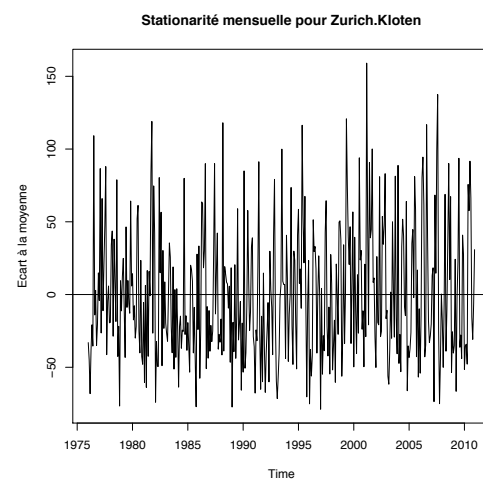
(c) stationnarité des stations du ZWCH



(d) stationnarité des stations du ZWCH



(e) stationnarité des stations du ZWCH



(f) stationnarité des stations du ZWCH

FIGURE 38 – stationnarité des zones choisies

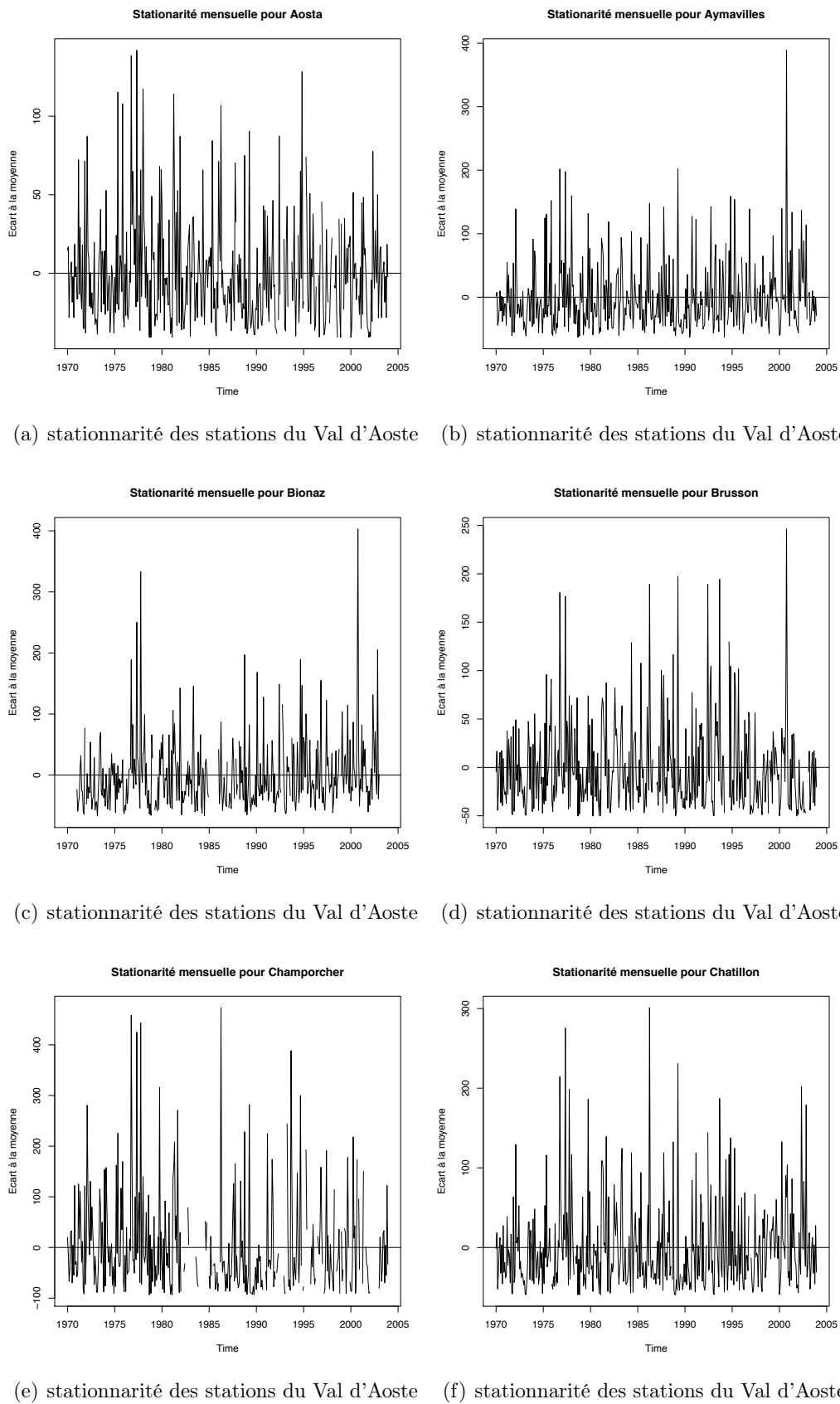


FIGURE 39 – stationnarité des zones choisies

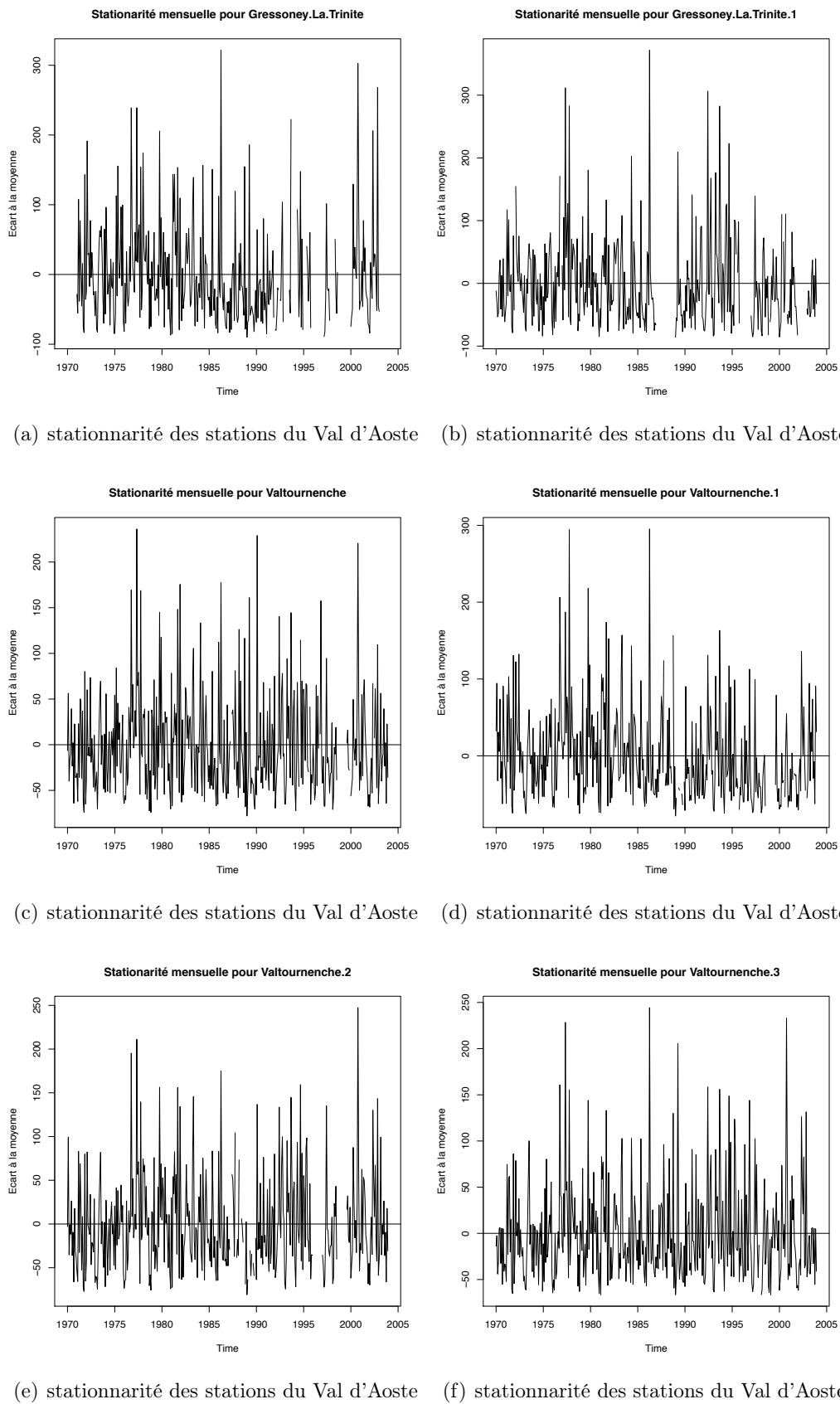
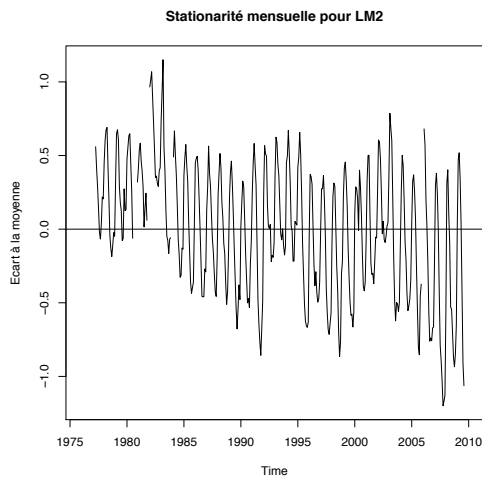
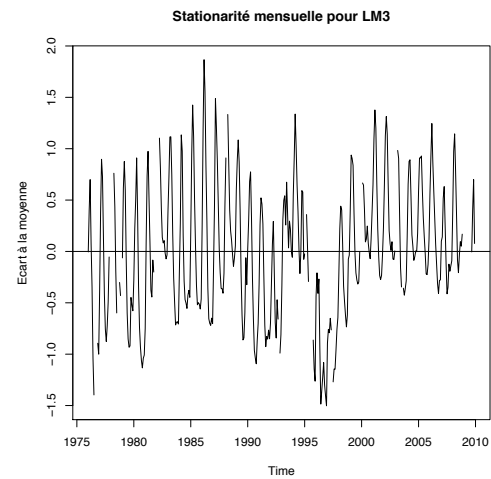


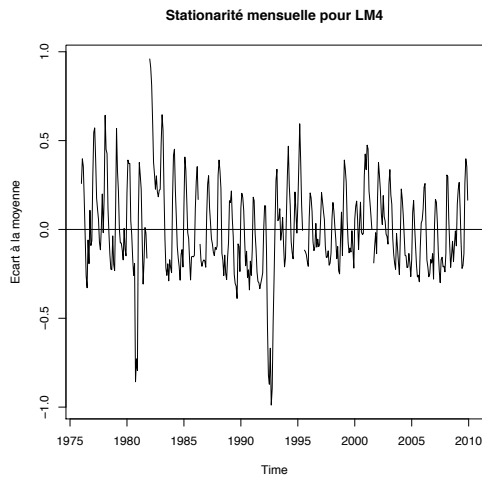
FIGURE 40 – stationnarité des zones choisies



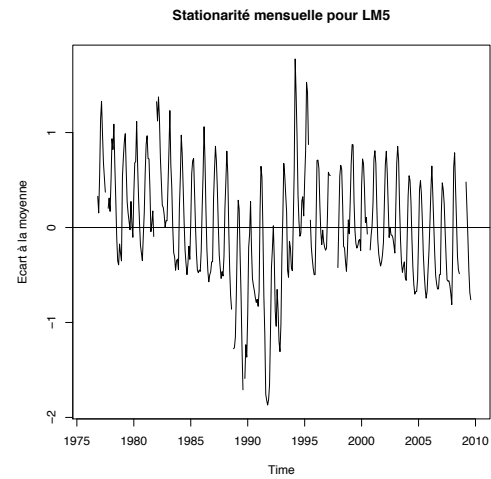
(a) stationnarité des piézomètres valaisans



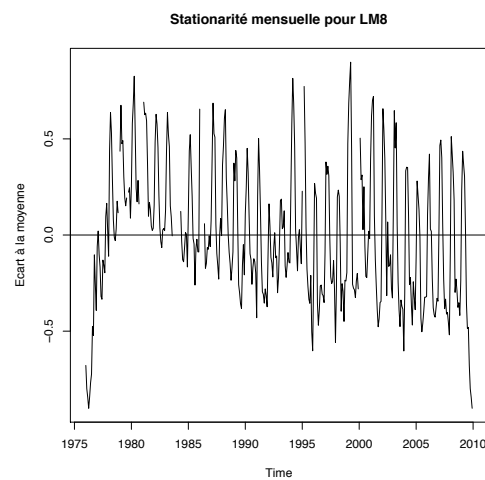
(b) stationnarité des piézomètres valaisans



(c) stationnarité des piézomètres valaisans



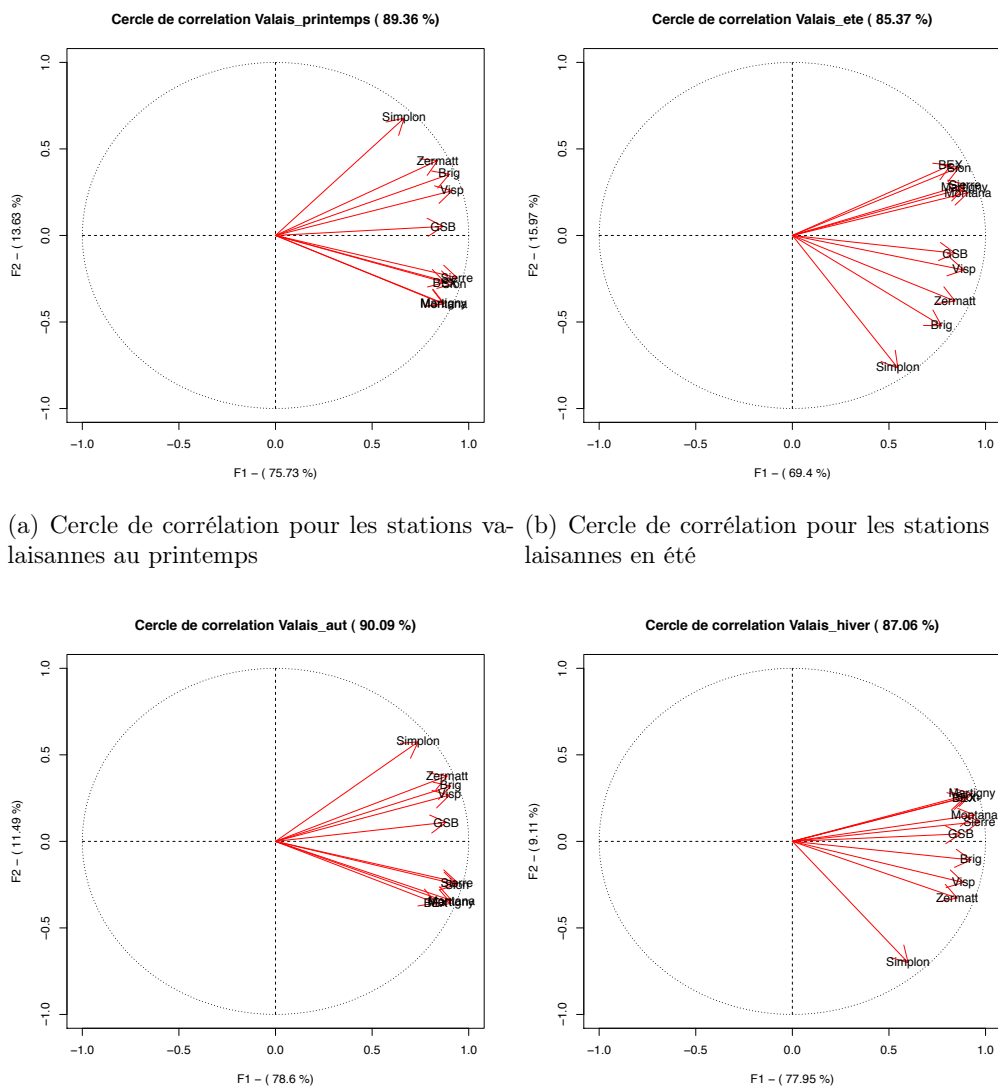
(d) stationnarité des piézomètres valaisans



(e) stationnarité des piézomètres valaisans

FIGURE 41 – stationnarité des piézomètres valaisans

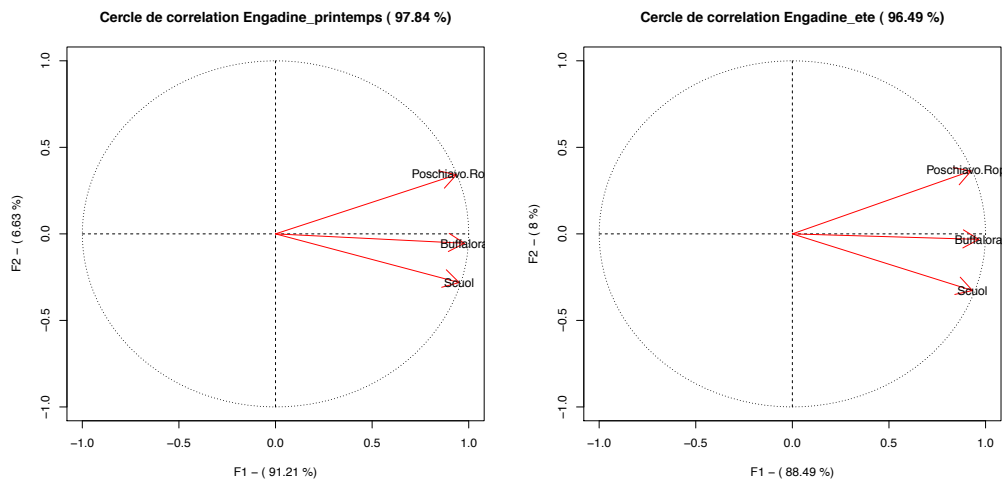
A.5 Corrélations des zones par saison



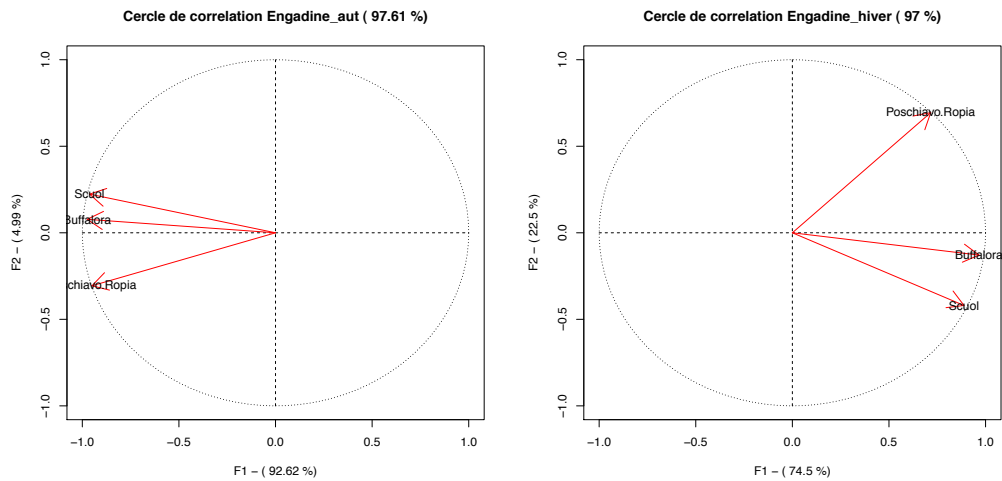
(a) Cercle de corrélation pour les stations valaisannes au printemps (b) Cercle de corrélation pour les stations valaisannes en été

(c) Cercle de corrélation pour les stations valaisannes en automne (d) Cercle de corrélation pour les stations valaisannes en hiver

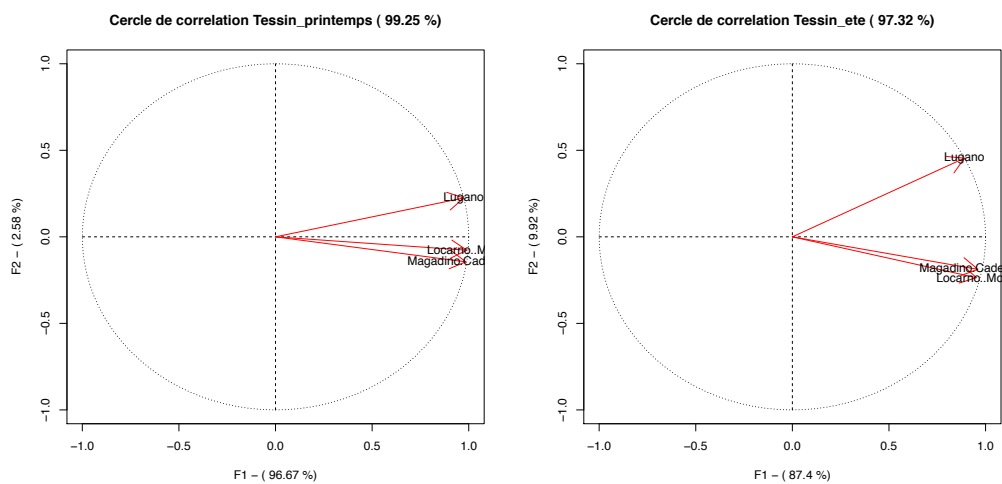
FIGURE 42 – stationnarité des zones choisies



(a) Cercle de corrélation pour les stations grisonnes au printemps (b) Cercle de corrélation pour les stations grisonnes en été

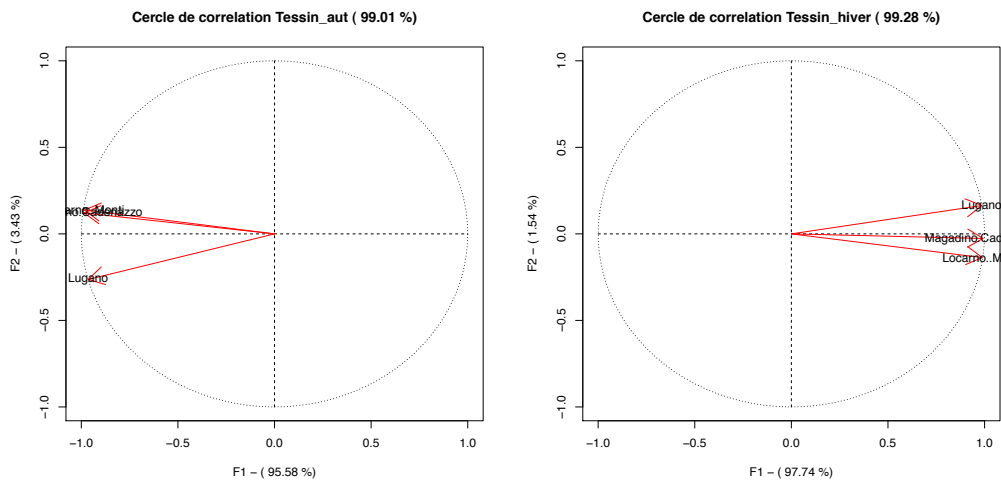


(c) Cercle de corrélation pour les stations grisonnes en automne (d) Cercle de corrélation pour les stations grisonnes en hiver

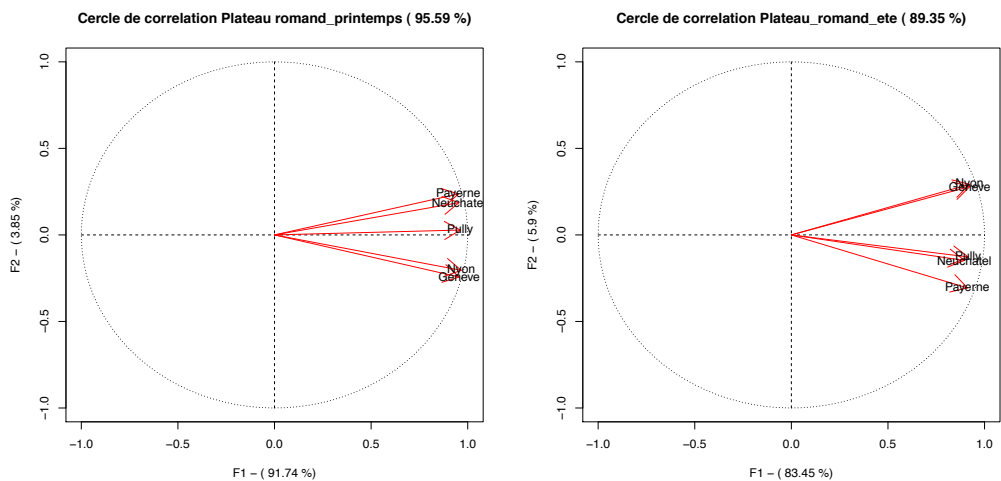


(e) Cercle de corrélation pour les stations tessinoises au printemps (f) Cercle de corrélation pour les stations tessinoises en été

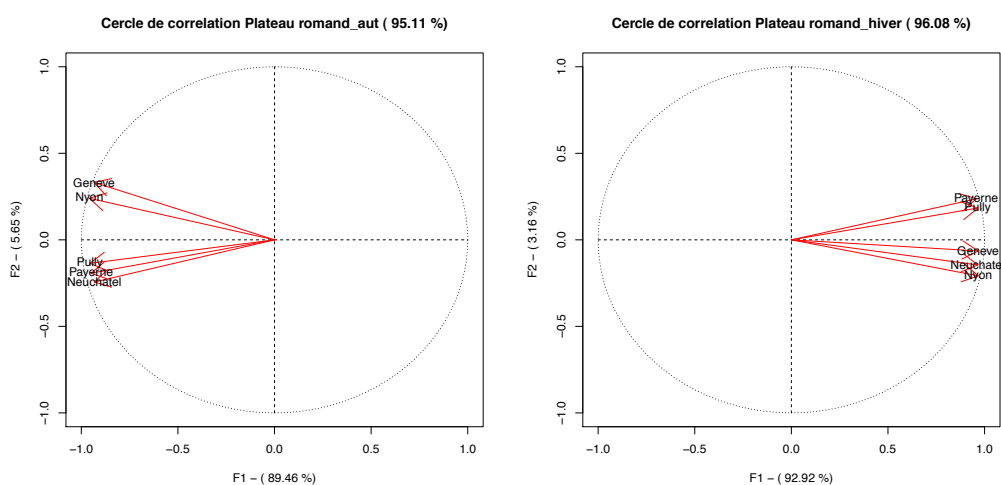
FIGURE 43 – stationnarité des zones choisies



(a) Cercle de corrélation pour les stations tessinoises en automne (b) Cercle de corrélation pour les stations tessinoises en hiver

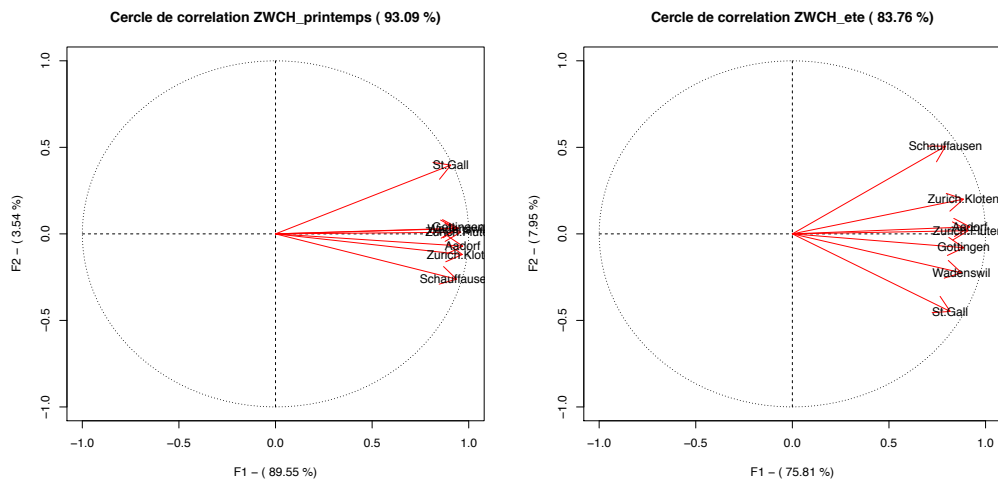


(c) Cercle de corrélation pour les stations romandes au printemps (d) Cercle de corrélation pour les stations romandes en été

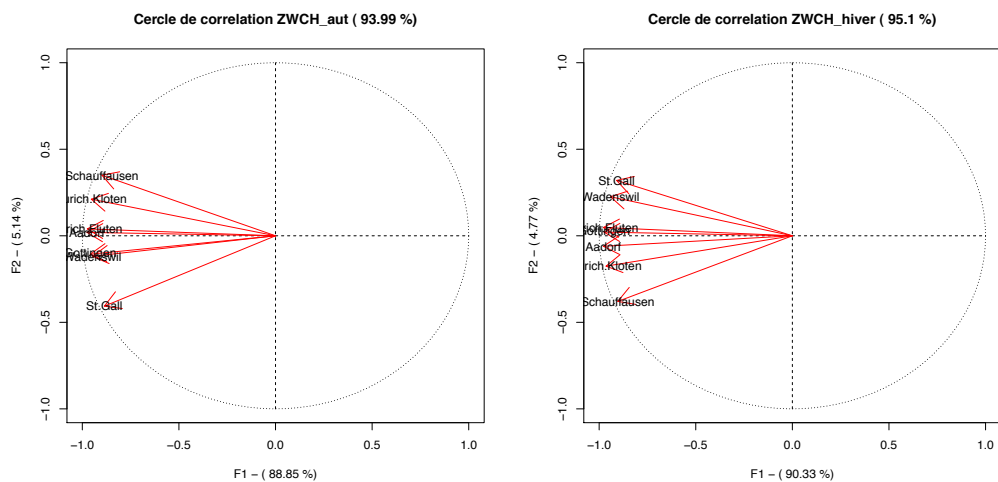


(e) Cercle de corrélation pour les stations romandes en automne (f) Cercle de corrélation pour les stations romandes en hiver

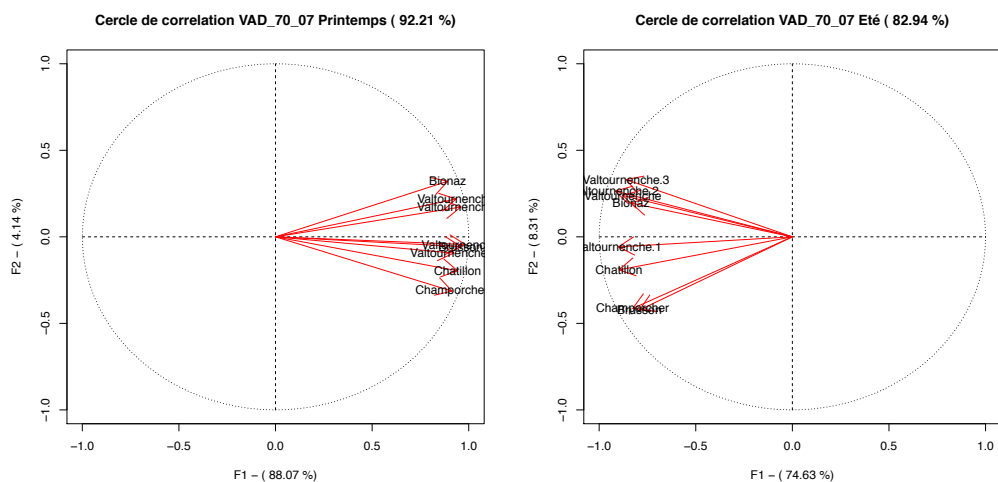
FIGURE 44 – stationnarité des zones choisies



(a) Cercle de corrélation pour les stations ZWCH au printemps (b) Cercle de corrélation pour les stations ZWCH en été

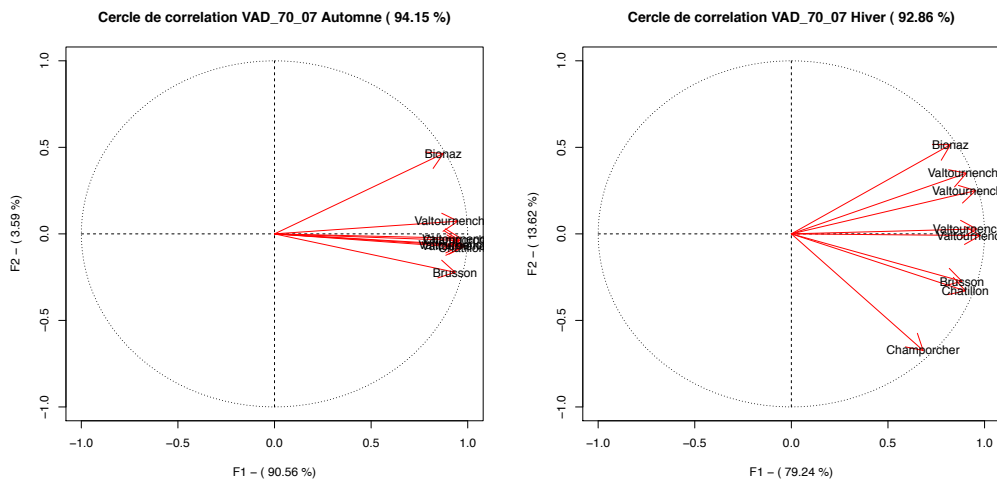


(c) Cercle de corrélation pour les stations ZWCH en automne (d) Cercle de corrélation pour les stations ZWCH en hiver

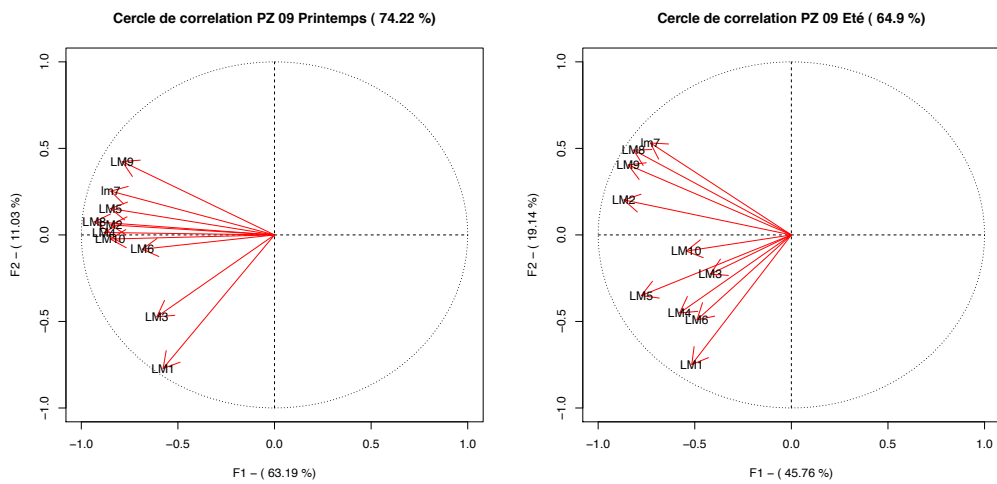


(e) Cercle de corrélation pour les stations Val d'Aoste au printemps (f) Cercle de corrélation pour les stations Val d'Aoste en été

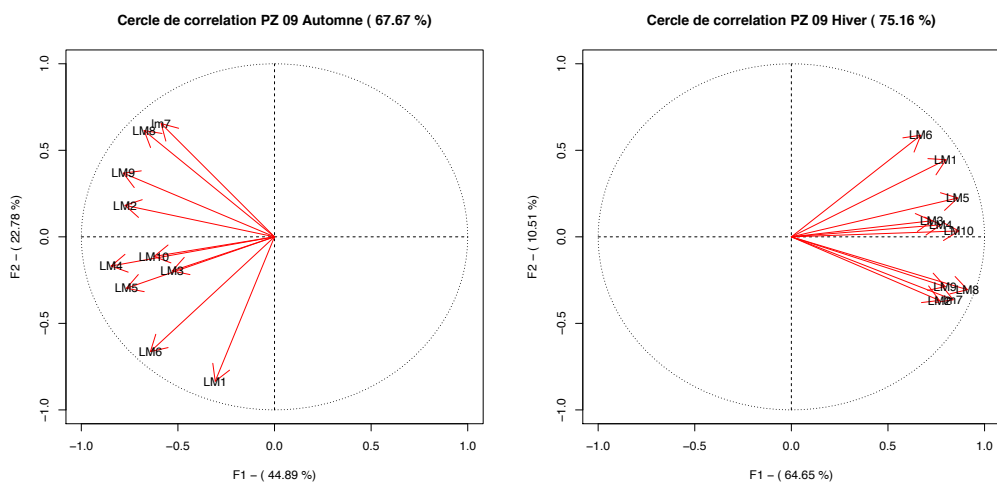
FIGURE 45 – stationnarité des zones choisies



(a) Cercle de corrélation pour les stations Val d'Aoste en automne (b) Cercle de corrélation pour les stations Val d'Aoste en hiver

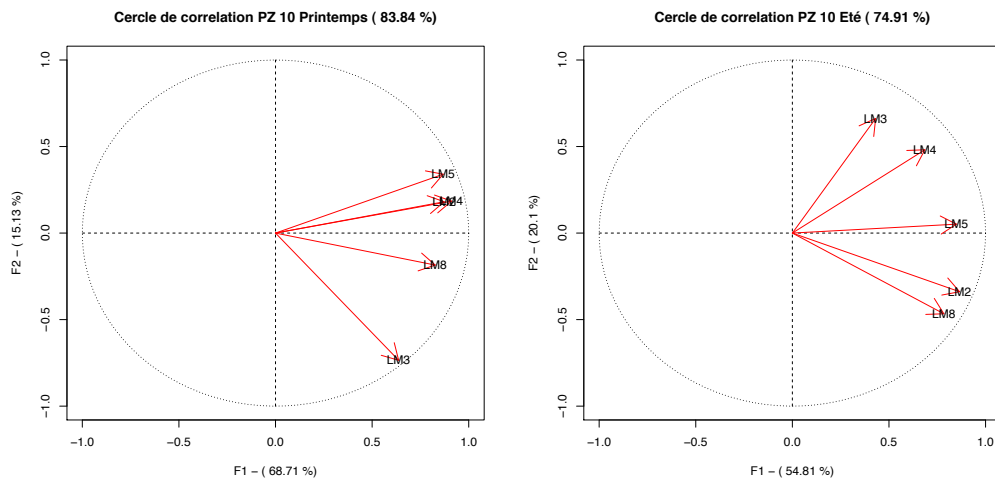


(c) Cercle de corrélation pour les piézomètres au printemps (d) Cercle de corrélation pour les piézomètres en été

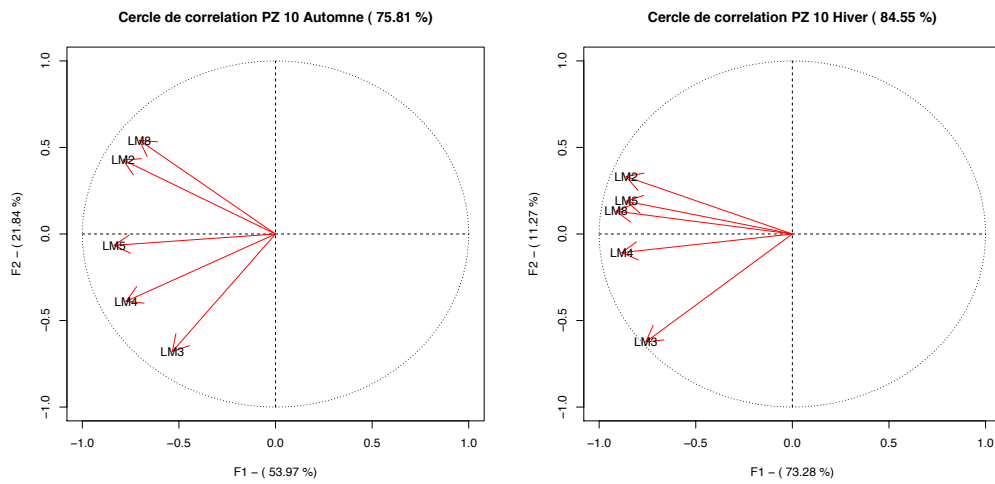


(e) Cercle de corrélation pour les piézomètres en automne (f) Cercle de corrélation pour les piézomètres en hiver

FIGURE 46 – stationnarité des zones choisies



(a) Cercle de corrélation pour les piézomètres valaisans au printemps
 (b) Cercle de corrélation pour les piézomètres valaisans en été



(c) Cercle de corrélation pour les piézomètres valaisans en automne
 (d) Cercle de corrélation pour les piézomètres valaisans en hiver

FIGURE 47 – stationnarité des zones choisies

A.6 Tendances saisonnières des piézomètres

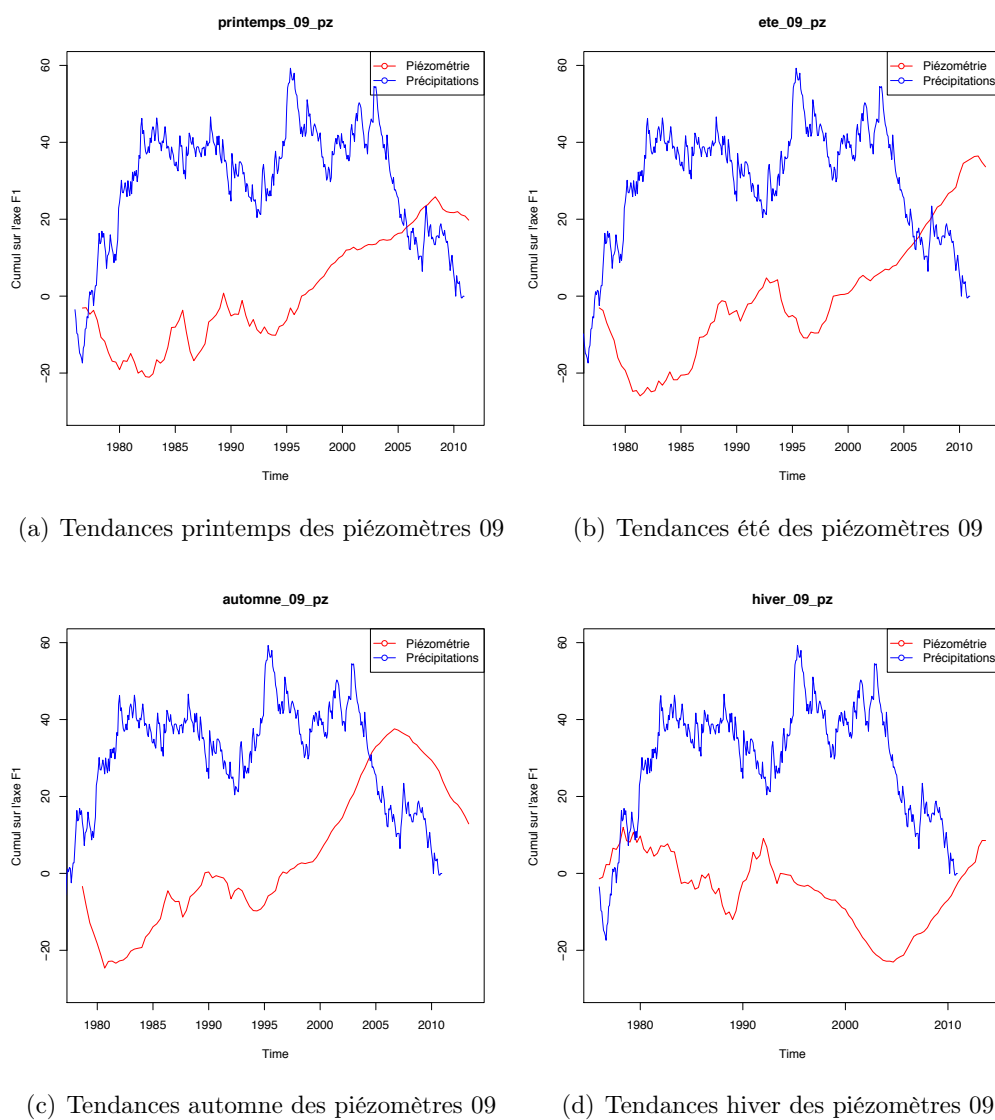
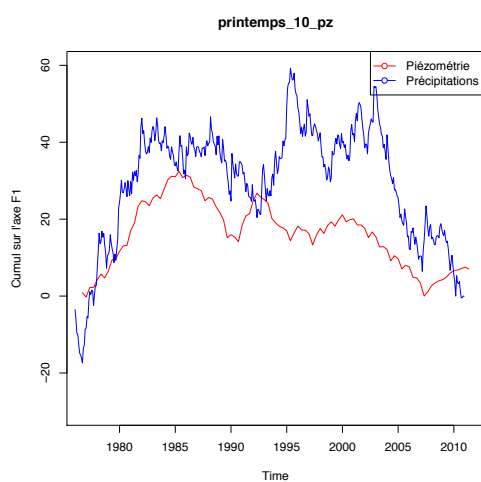
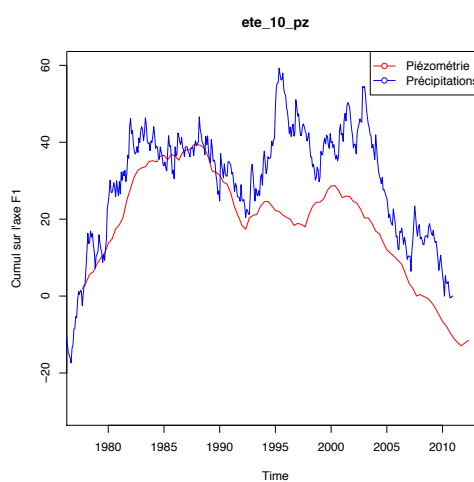


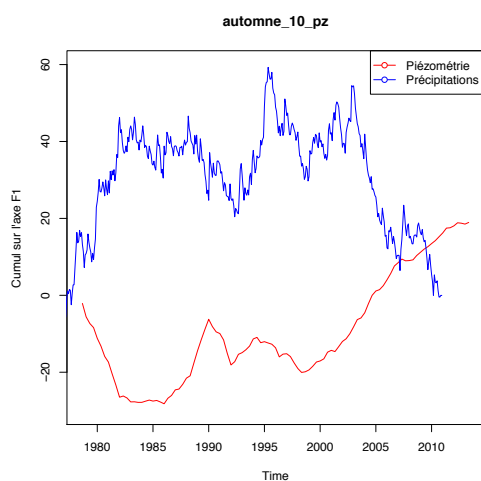
FIGURE 48 – Tendances saisonnières des piézomètres jusqu'en 2009



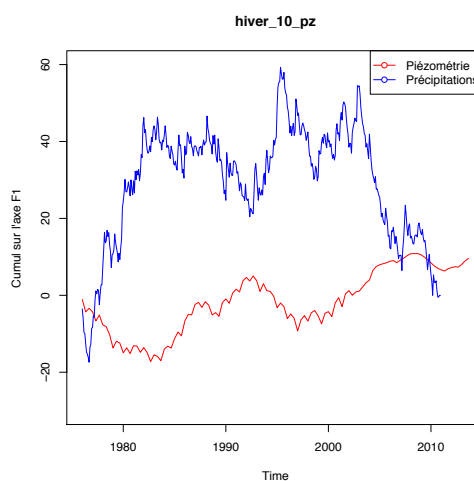
(a) Tendances printemps des piézomètres 10



(b) Tendances été des piézomètres 10



(c) Tendances automne des piézomètres 10

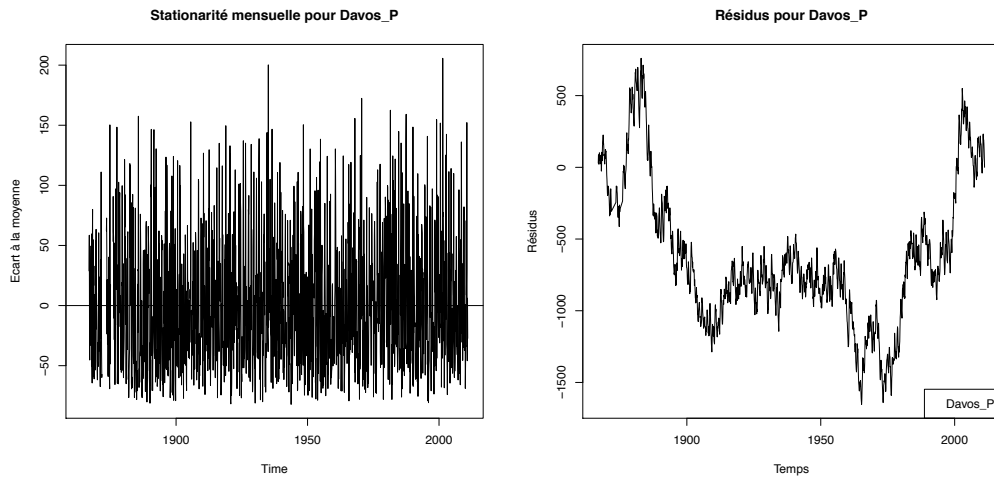


(d) Tendances hiver des piézomètres 10

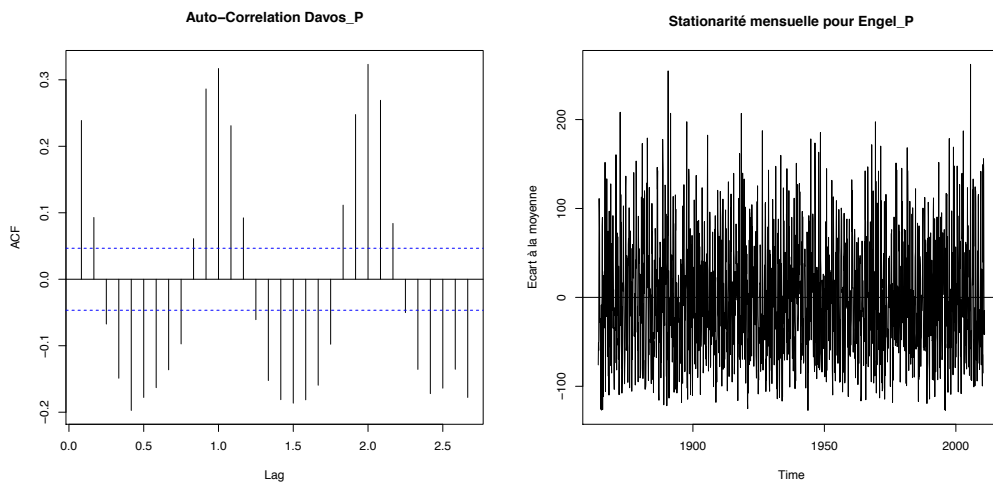
FIGURE 49 – Tendances saisonnières des piézomètres jusqu'en 2010

B Annexes de la partie 5

B.1 Stationnarité des précipitations

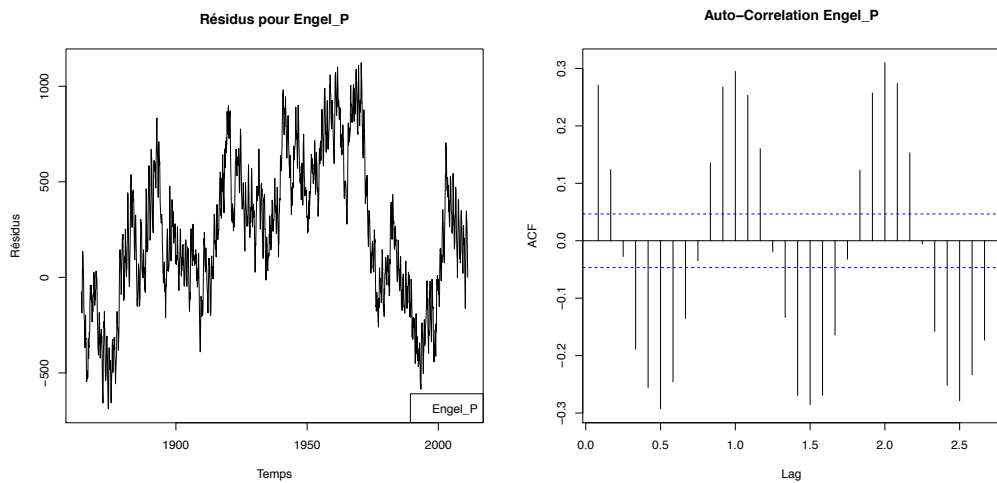


(a) Test de stationnarité pour le poste de Davos (b) Distribution des résidus pour le poste de Davos

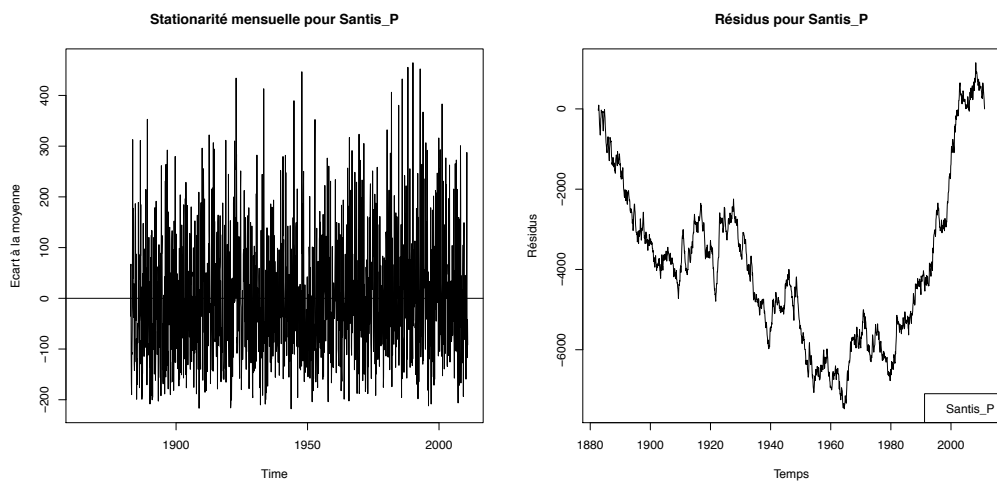


(c) Variation du coefficient de corrélation pour Davos (d) Test de stationnarité pour le poste de Engelberg

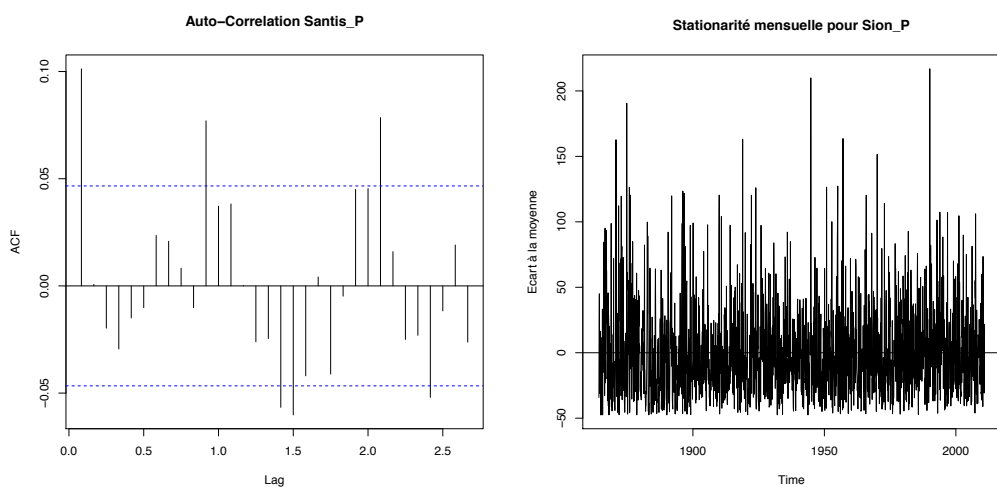
FIGURE 50 – stationnarité, résidus et autocorrélation des quatre stations



(a) Distribution des résidus pour le poste de Engelberg (b) Variation du coefficient de corrélation pour Engelberg

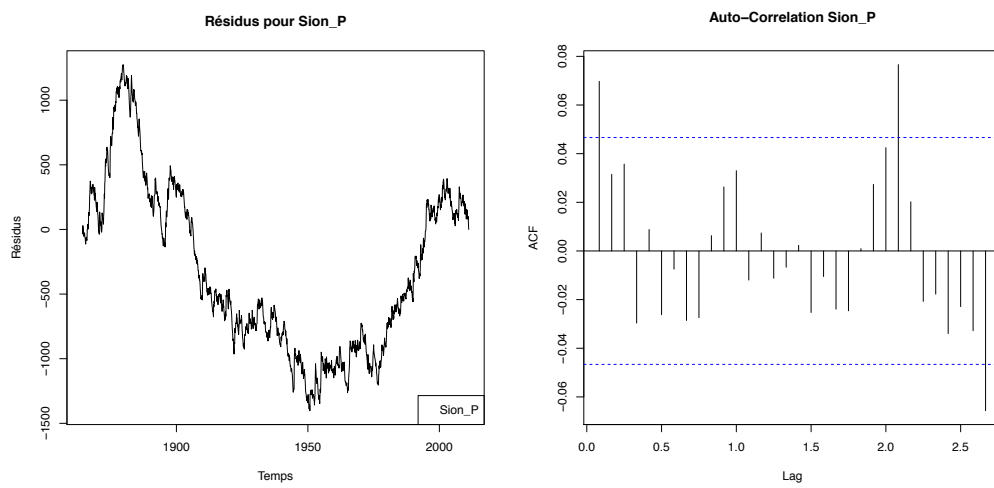


(c) Test de stationnarité pour le poste de Sântis (d) Distribution des résidus pour le poste de Sântis



(e) Variation du coefficient de corrélation pour Sântis (f) Test de stationnarité pour le poste de Sion

FIGURE 51 – stationnarité, résidus et autocorrélation des quatre stations



(a) Distribution des résidus pour le poste de Sion
(b) Variation du coefficient de corrélation pour le poste de Sion

FIGURE 52 – stationnarité, résidus et autocorrélation des quatre stations

B.2 Stationnarité des températures

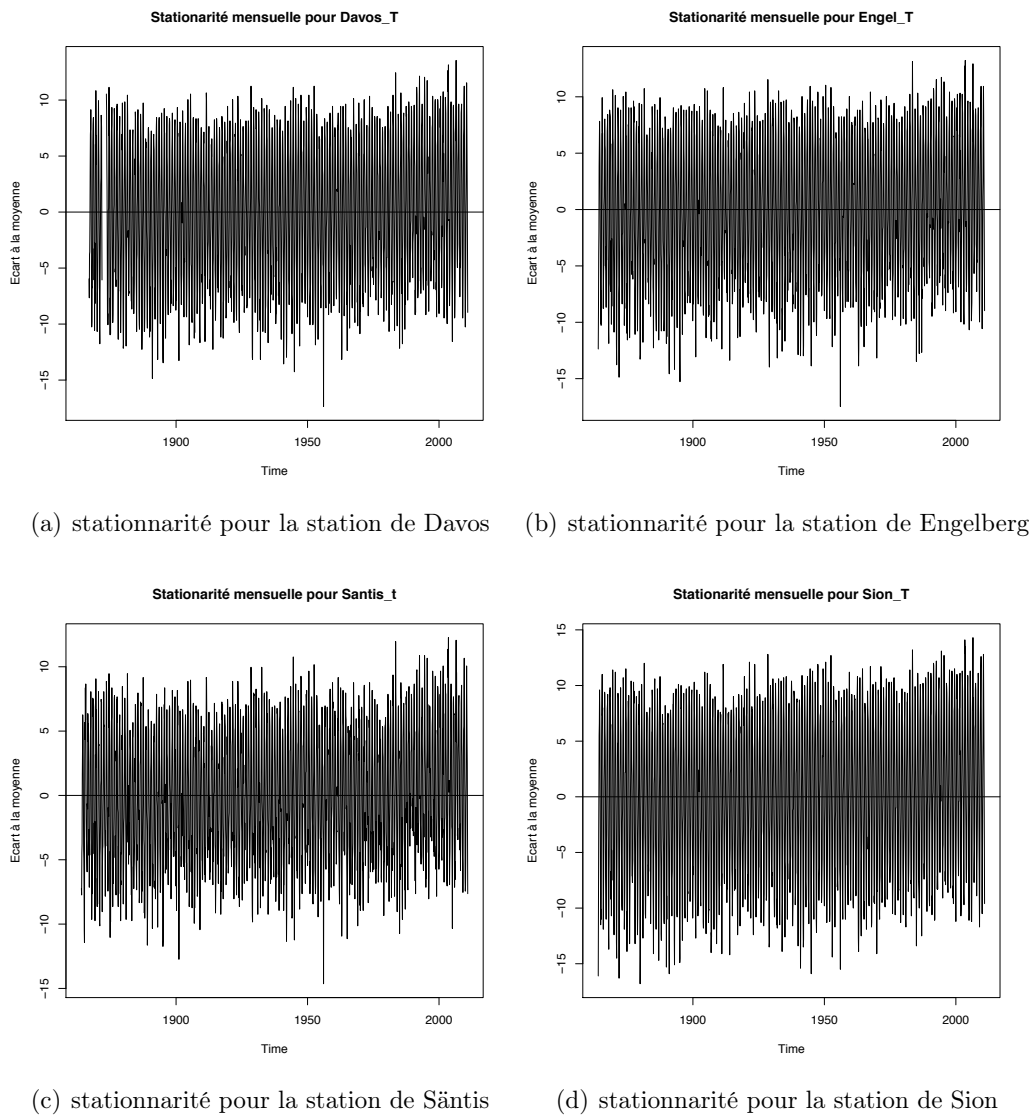
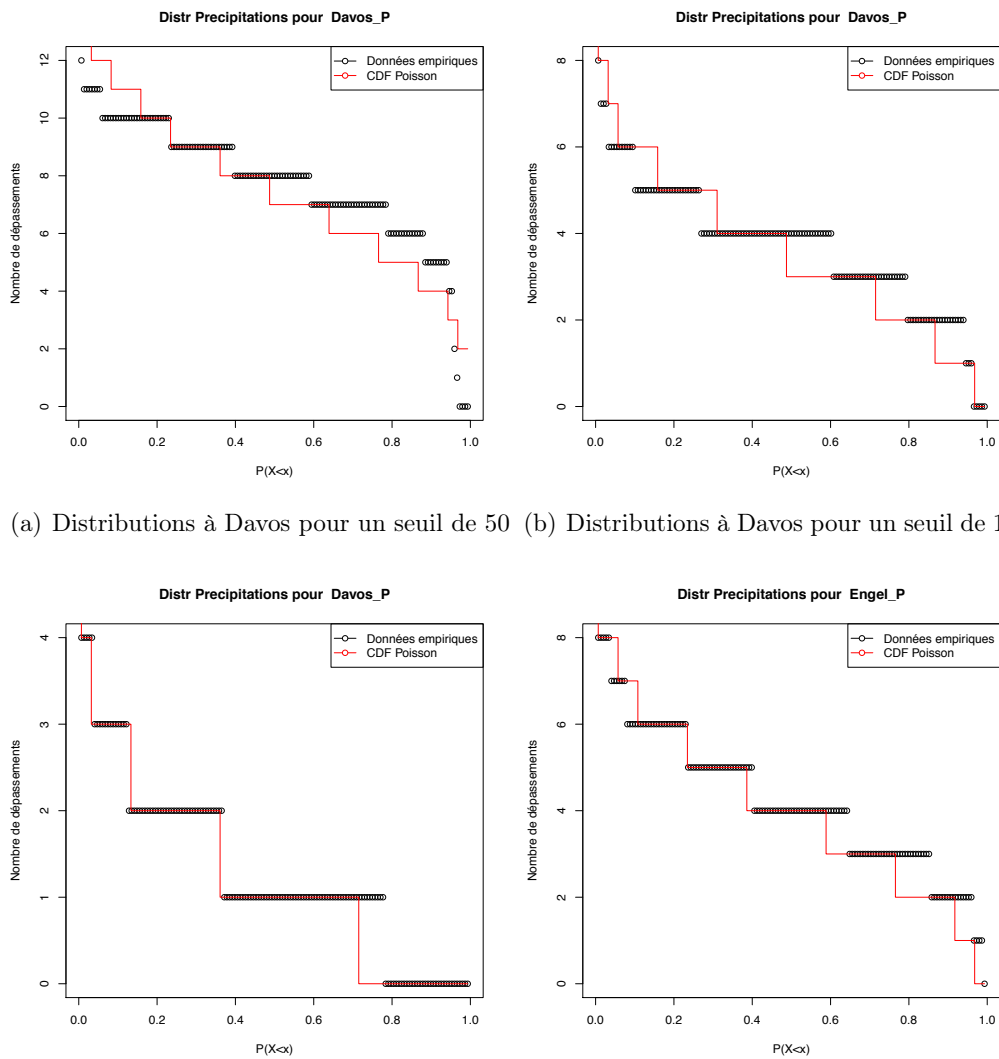


FIGURE 53 – stationnarité des températures pour les quatre stations

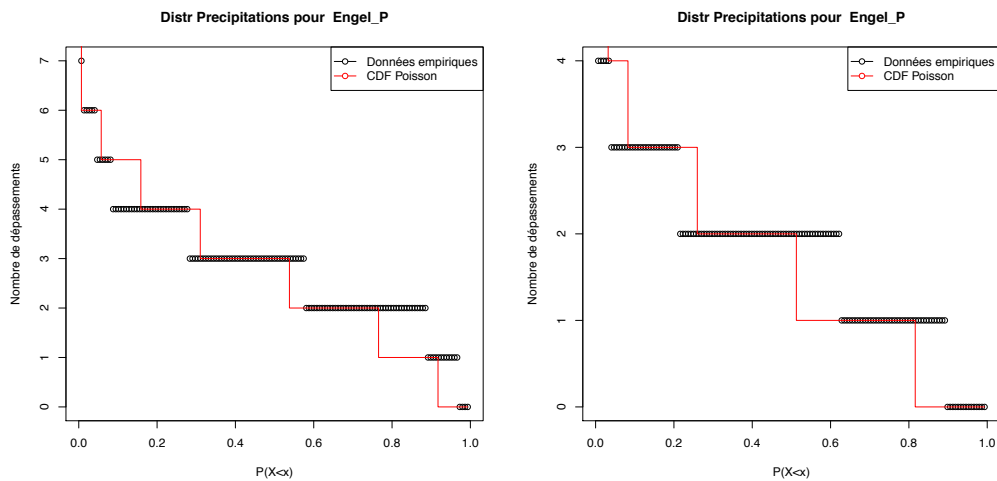
B.3 Distribution des précipitations extrêmes



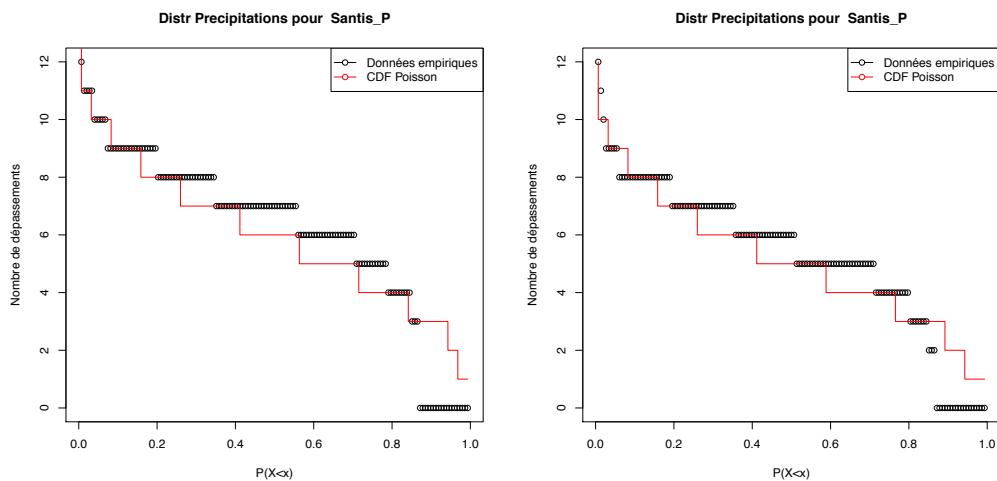
(a) Distributions à Davos pour un seuil de 50 (b) Distributions à Davos pour un seuil de 100

(c) Distributions à Davos pour un seuil de 150 (d) Distributions à Engelberg pour un seuil de 150

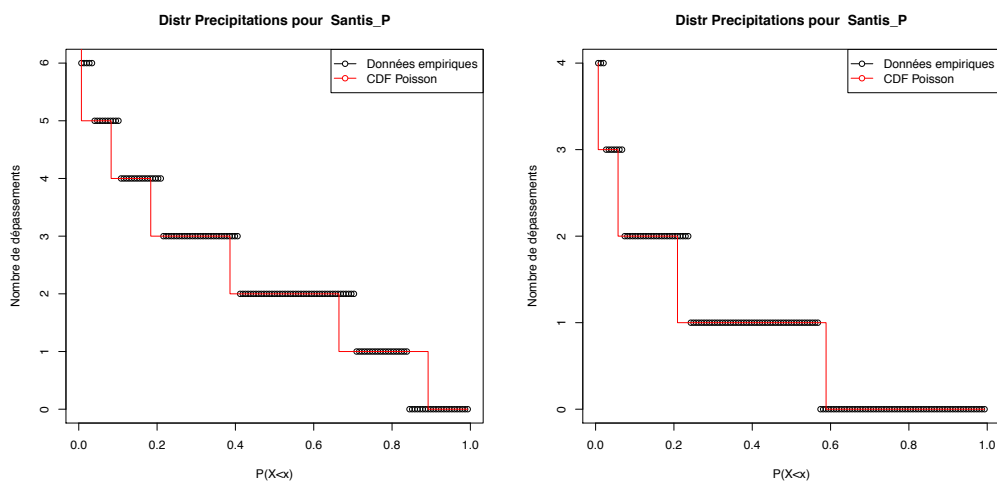
FIGURE 54 – Distributions des précipitations annuelles et la fonction empirique de poisson



(a) Distributions à Engelberg pour un seuil de 175 (b) Distributions à Engelberg pour un seuil de 200

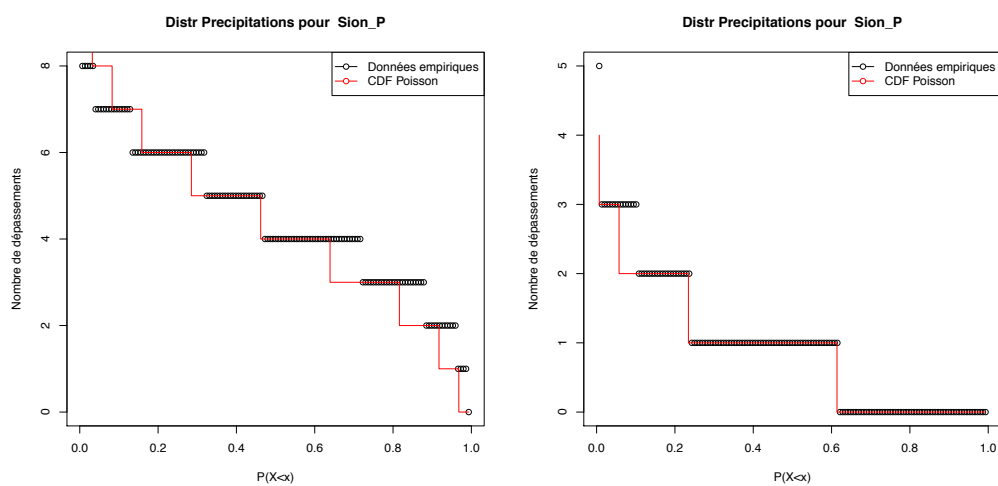


(c) Distributions à Sântis pour un seuil de 175 (d) Distributions à Sântis pour un seuil de 200



(e) Distributions à Sântis pour un seuil de 300 (f) Distributions à Sântis pour un seuil de 400

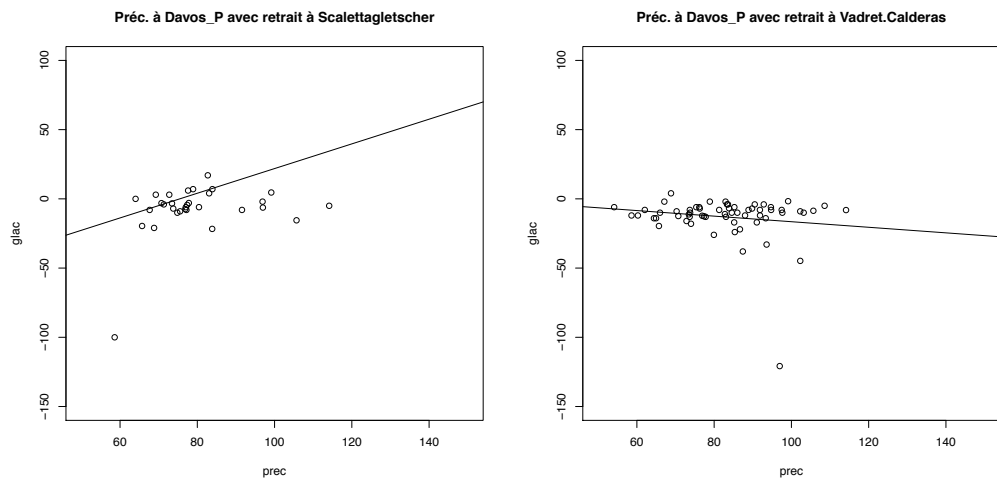
FIGURE 55 – Distributions des précipitations annuelles et la fonction empirique de poisson



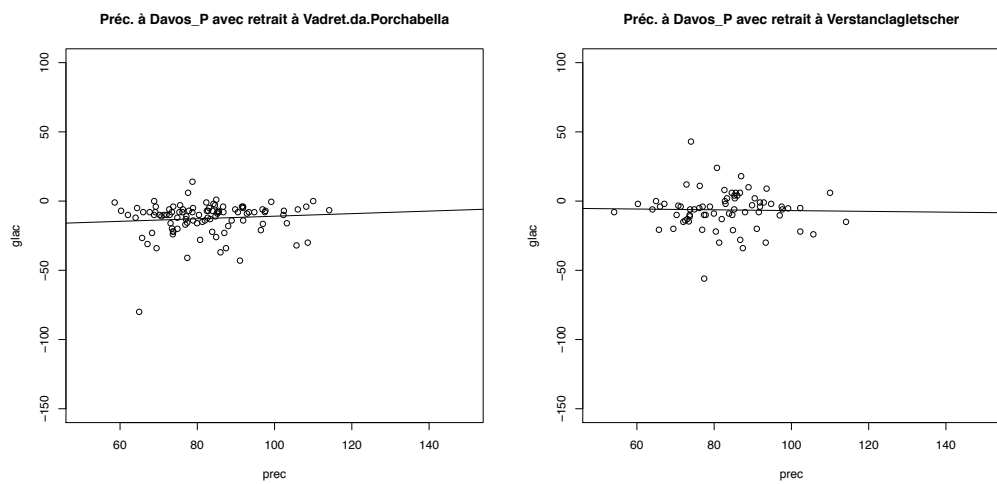
(a) Distributions à Sion pour un seuil de 50 (b) Distributions à Sion pour un seuil de 100

FIGURE 56 – Distributions des précipitations annuelles et la fonction empirique de poisson

B.4 Relation précipitations/retrait glaciers

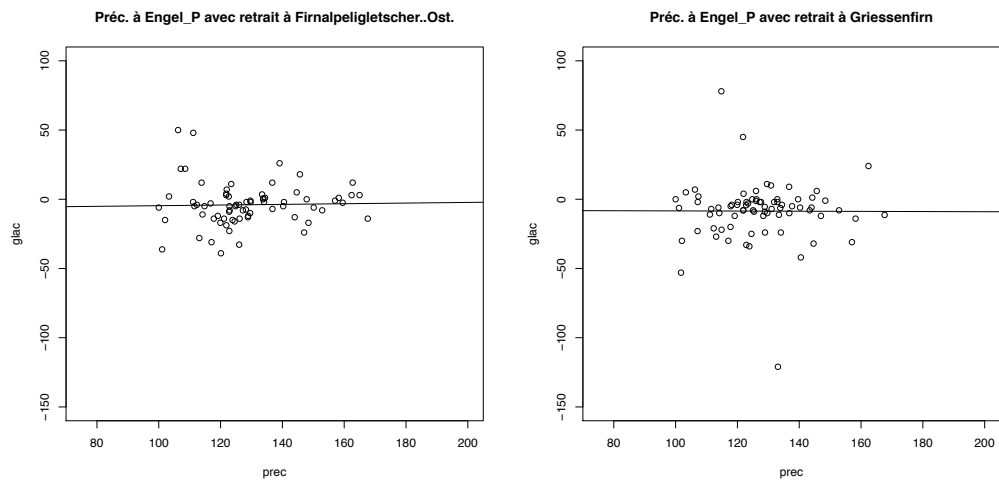


(a) Préc à Davos, retrait à Scalettagletscher (b) Préc à Davos, retrait à Vadret Calderas

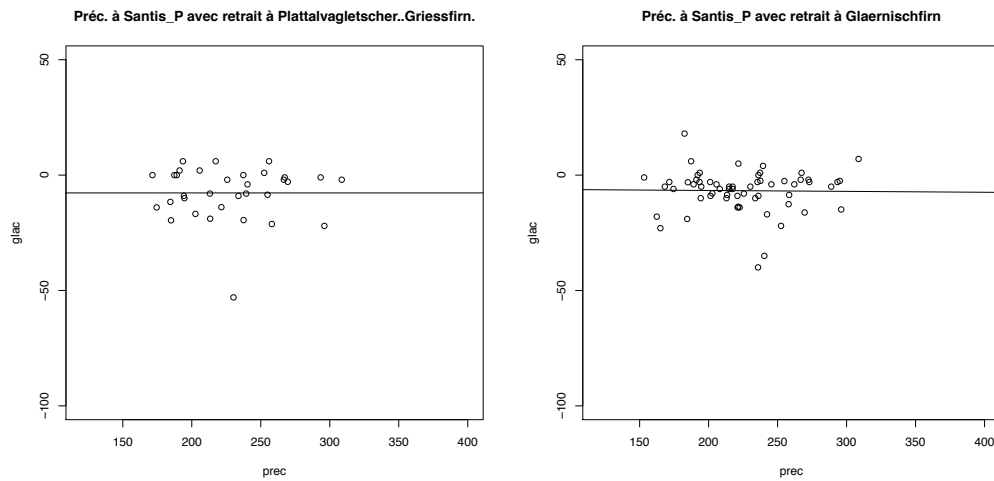


(c) Préc à Davos avec retrait Vadret da Por- (d) Préc à Davos avec retrait Verstanclaglet-
chabella scher

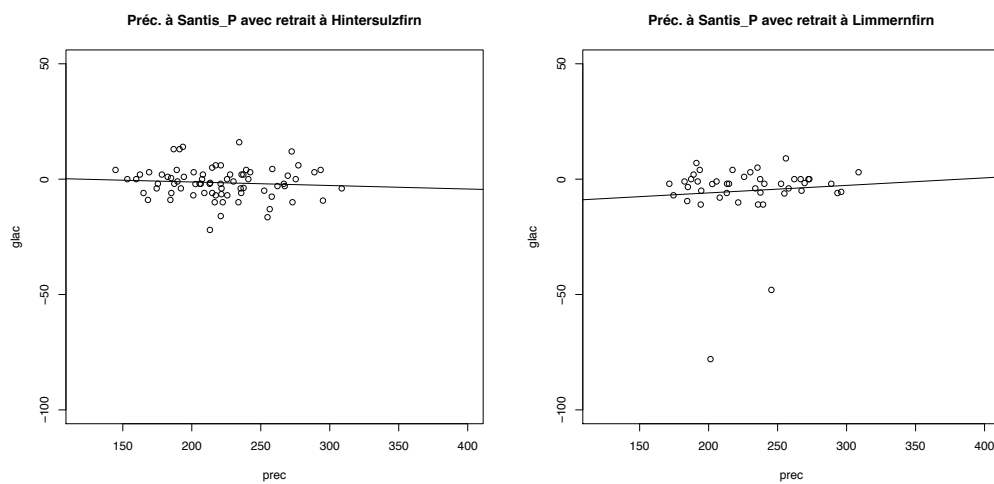
FIGURE 57 – Précipitations versus retrait du glacier



(a) Préc à Engelberg avec retrait Firnalpeli- (b) Préc à Engelberg avec retrait Griessenfirn
gletscher Ost

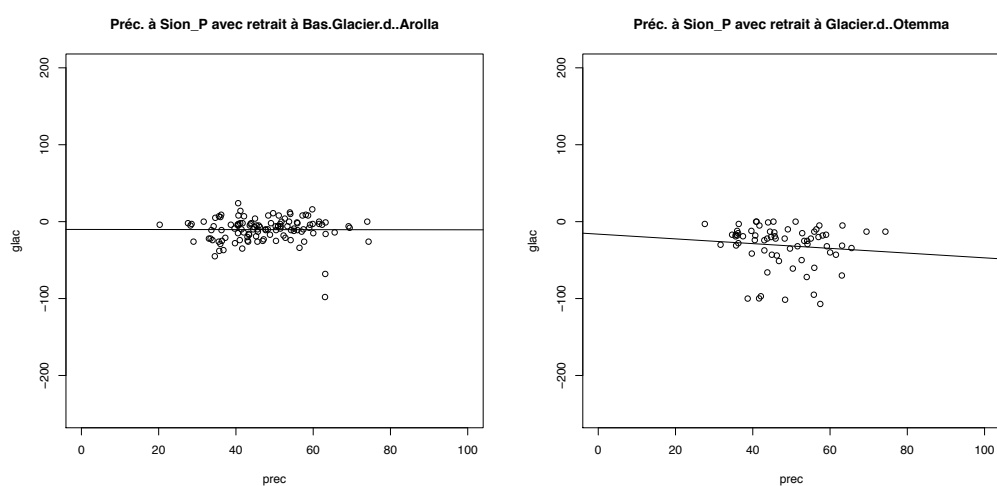


(c) Préc à Sântis avec retrait Plattavagletscher (d) Préc à Sântis avec retrait Glarnischfirn
Griessfirn

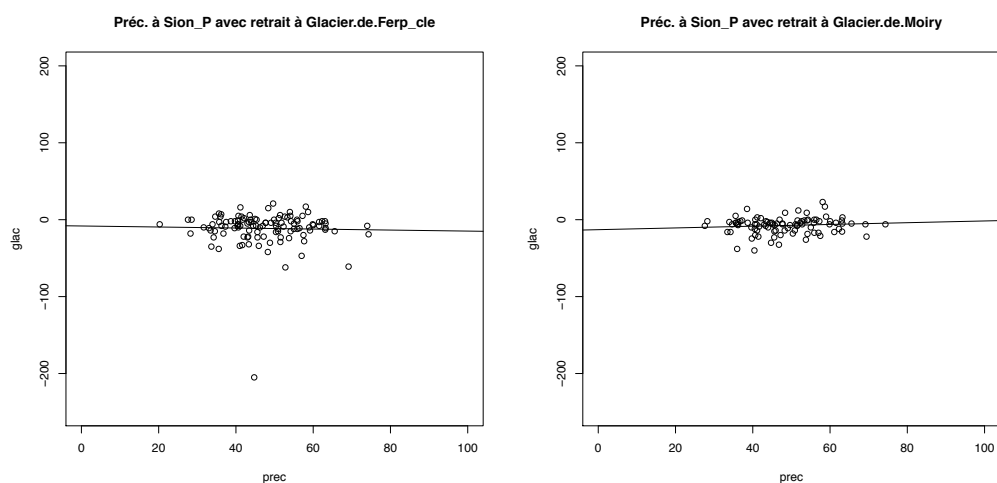


(e) Préc à Sântis avec retrait Hintersulzfirn (f) Préc à Sântis avec retrait Limmernfirn

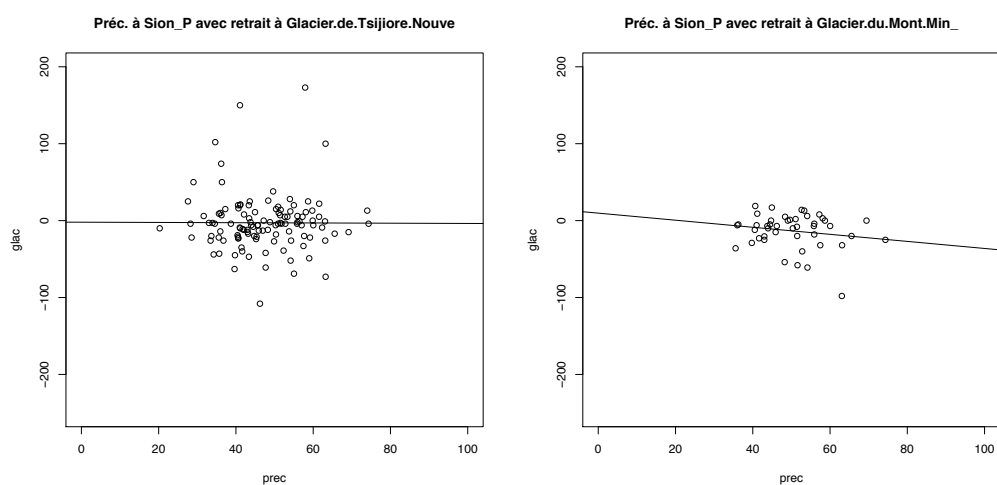
FIGURE 58 – Précipitations versus retrait du glacier



(a) Préc à Sion avec retrait Bas Glacier (b) Préc à Sion avec retrait Glacier d'Otemma d'Arolla



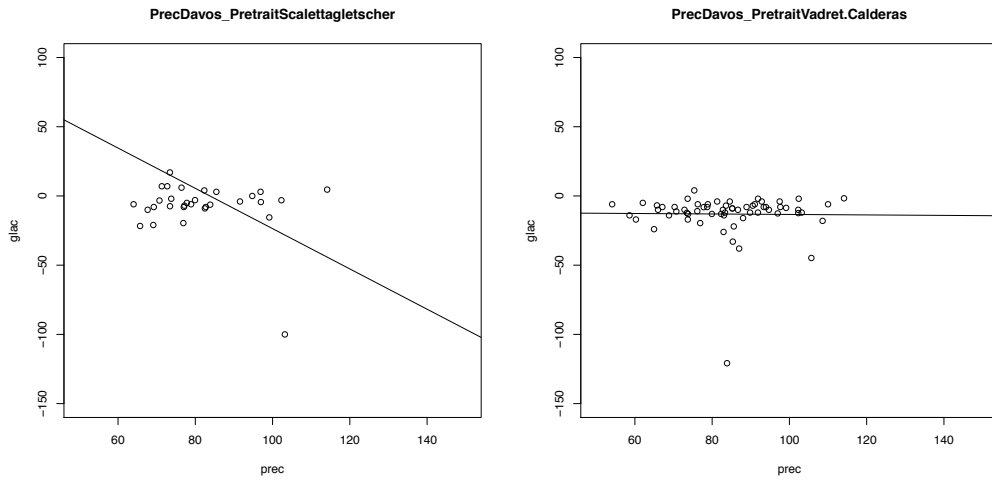
(c) Préc à Davos avec retrait Glacier de Fer- (d) Préc à Sion avec retrait Glacier de Moiry pèche



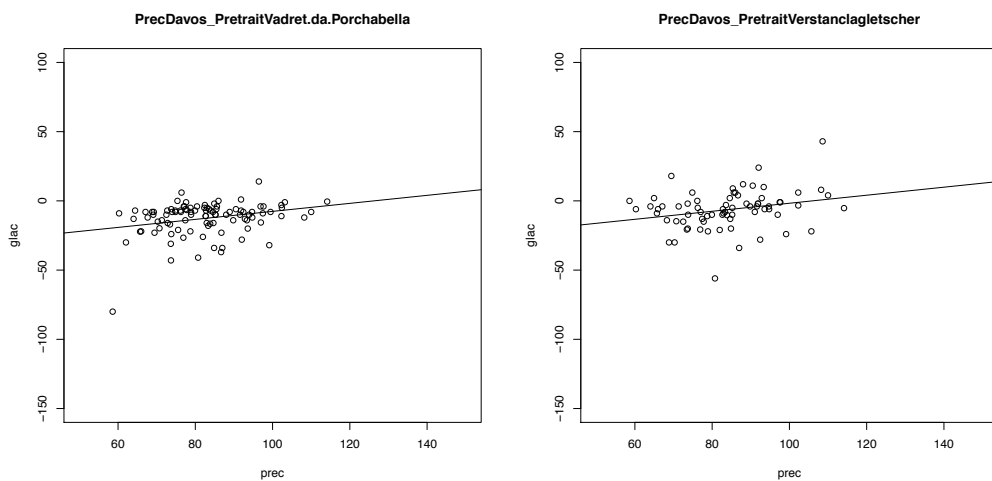
(e) Préc à Sion avec retrait Glacier de Tsijiore (f) Préc à Sion avec retrait Glacier du Mont Nouve Miné

FIGURE 59 – Précipitations versus retrait du glacier

B.5 Corrélation des précipitations et des glaciers avec un décalage temporel

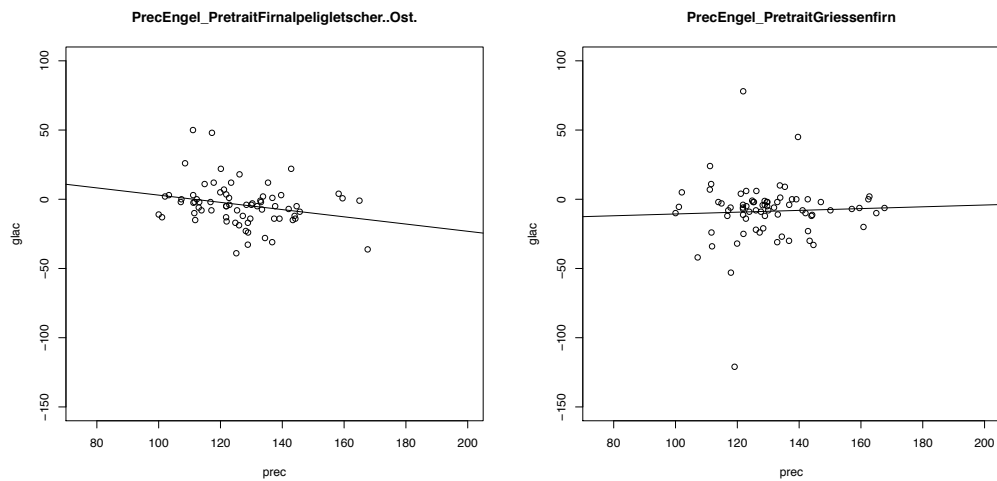


(a) Décalage de 1an entre Davos et Scaletta- (b) Décalage de 1an entre Davos et Vadret Cal-
gletscher deras

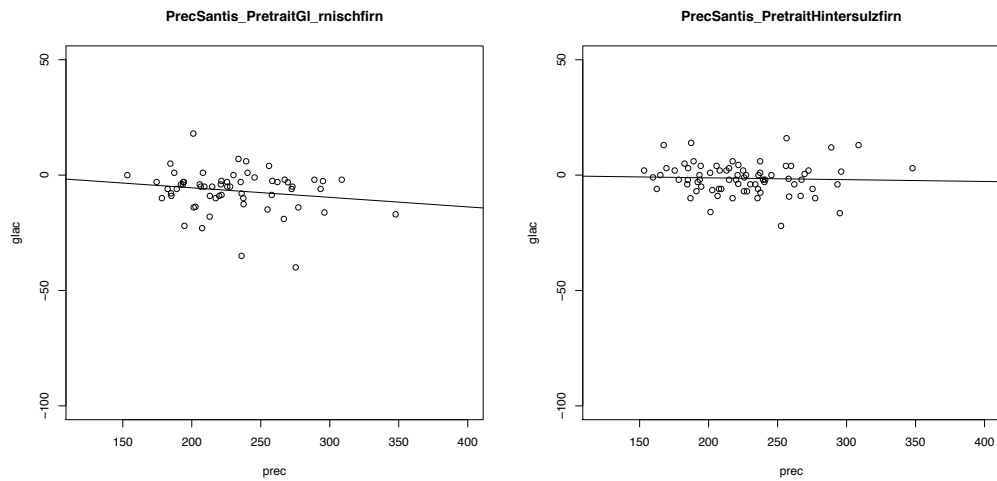


(c) Décalage de 1an entre Davos et Vadretda (d) Décalage de 1an entre Davos et Verstancla-
Porchabella gletscher

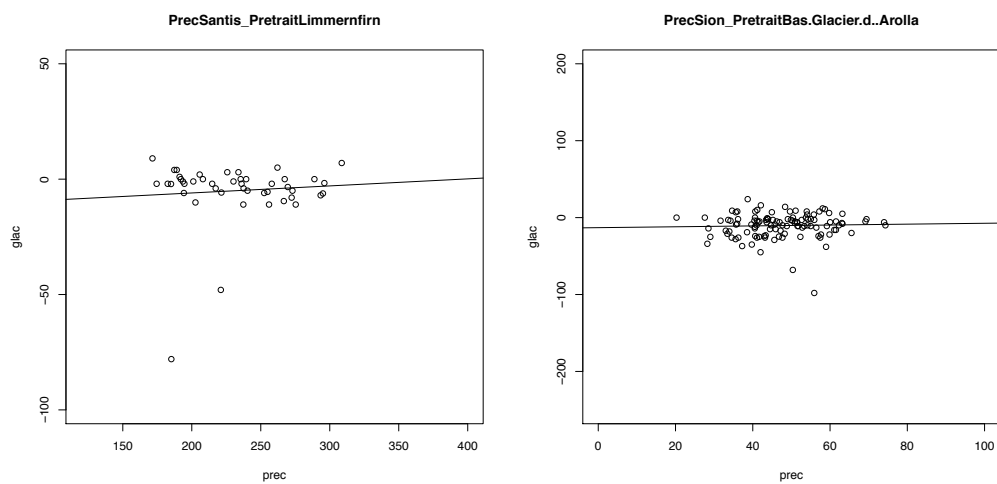
FIGURE 60 – Précipitations versus retrait du glacier, avec 1 an de décalage



(a) Décalage de 1an entre Engelberg et Firnal- (b) Décalage de 1an entre Engelberg et Gries-
pelgletscherOst senfirn

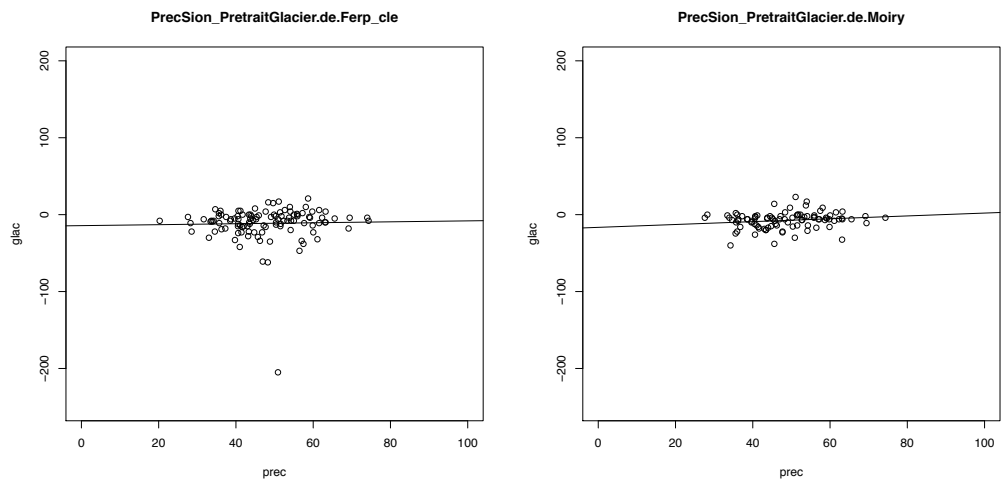


(c) Décalage de 1an entre Sântis et Glaernisch- (d) Décalage de 1an entre Sântis et Hintersulz-
firn firn

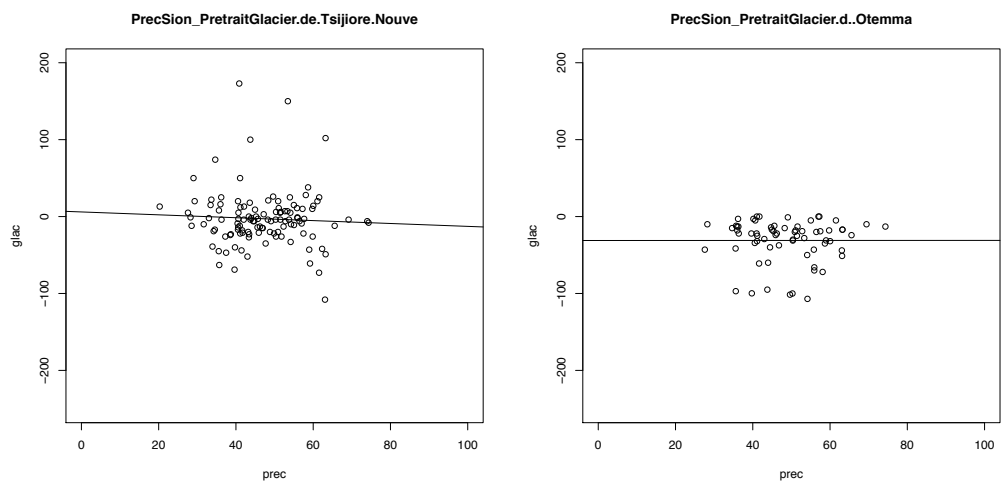


(e) Décalage de 1an entre Sântis et Limmern- (f) Décalage de 1an entre Sion et BasGlacier-
firn dArolla

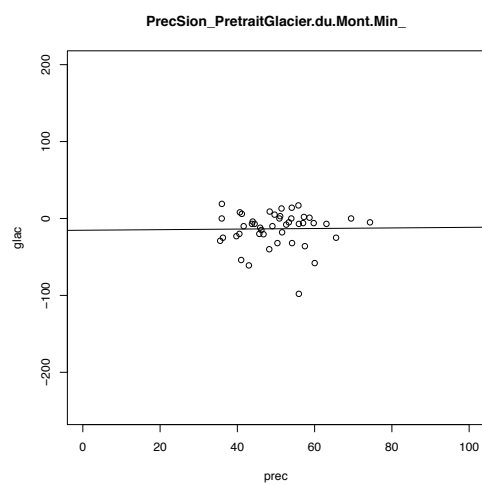
FIGURE 61 – Précipitations versus retrait du glacier, avec 1 an de décalage



(a) Décalage de 1an entre Sion et Glacierde- (b) Décalage de 1an entre Sion et Glacierde-
Ferpecle Moiry



(c) Décalage de 1an entre Sion et GlacierdeT- (d) Décalage de 1an entre Sion et GlacierdO-
sijoreNouve temma



(e) Décalage de 1an entre Sion et Glacierdu-
MontMine

FIGURE 62 – Précipitations versus retrait du glacier, avec 1 an de décalage

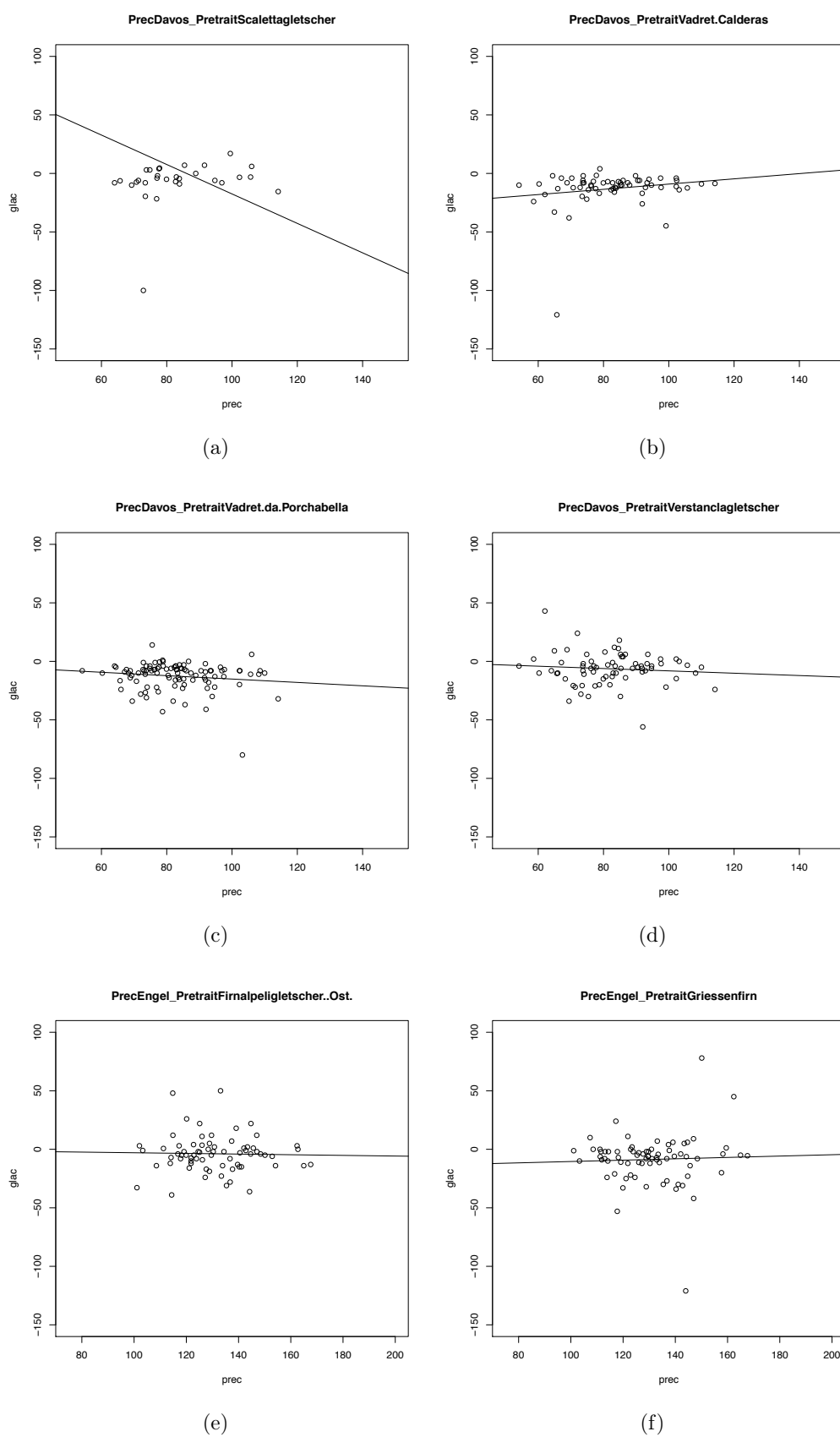


FIGURE 63 – Précipitations versus retrait du glacier, avec 2 an de décalage

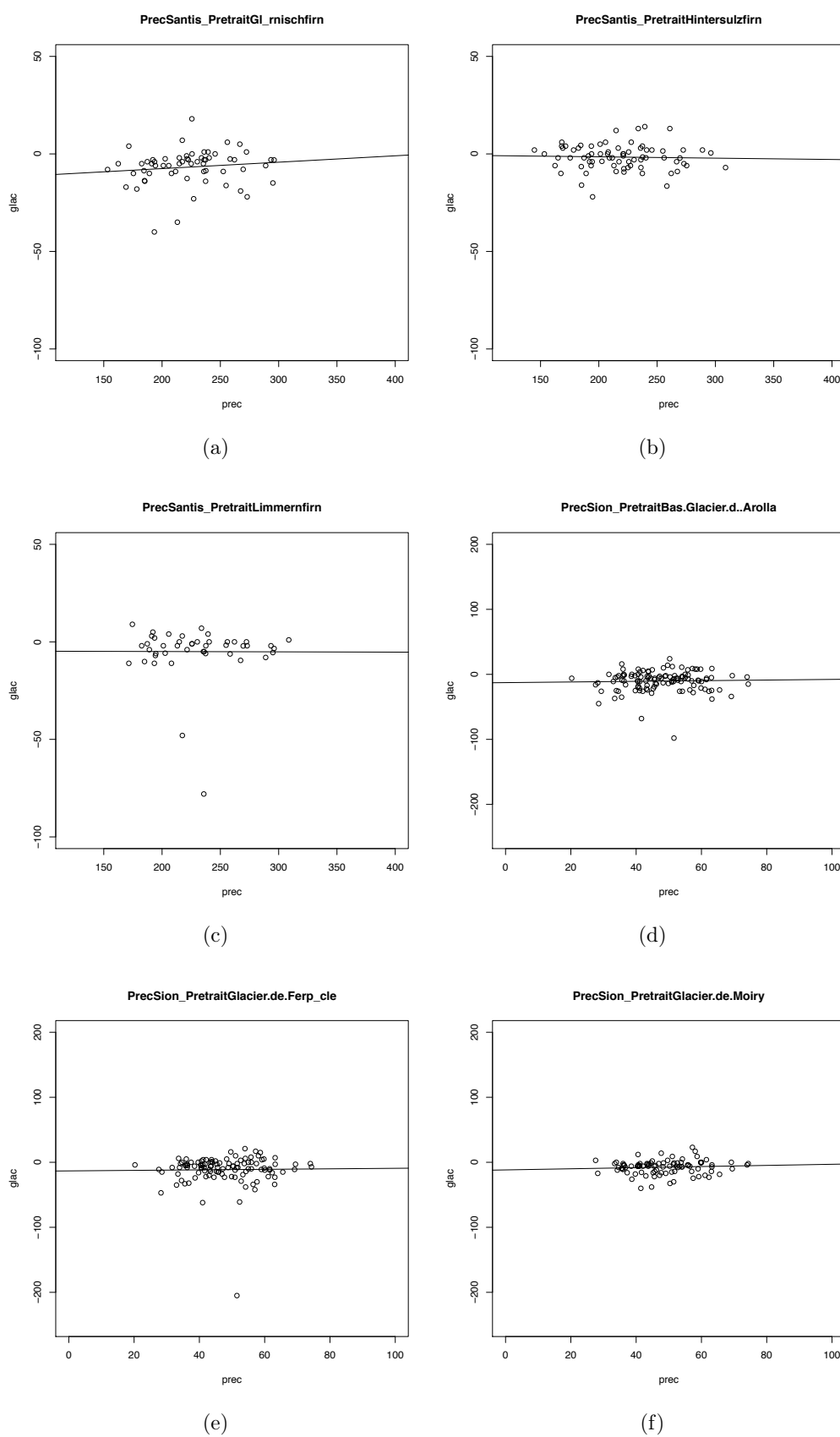


FIGURE 64 – Précipitations versus retrait du glacier, avec 2 ans de décalage

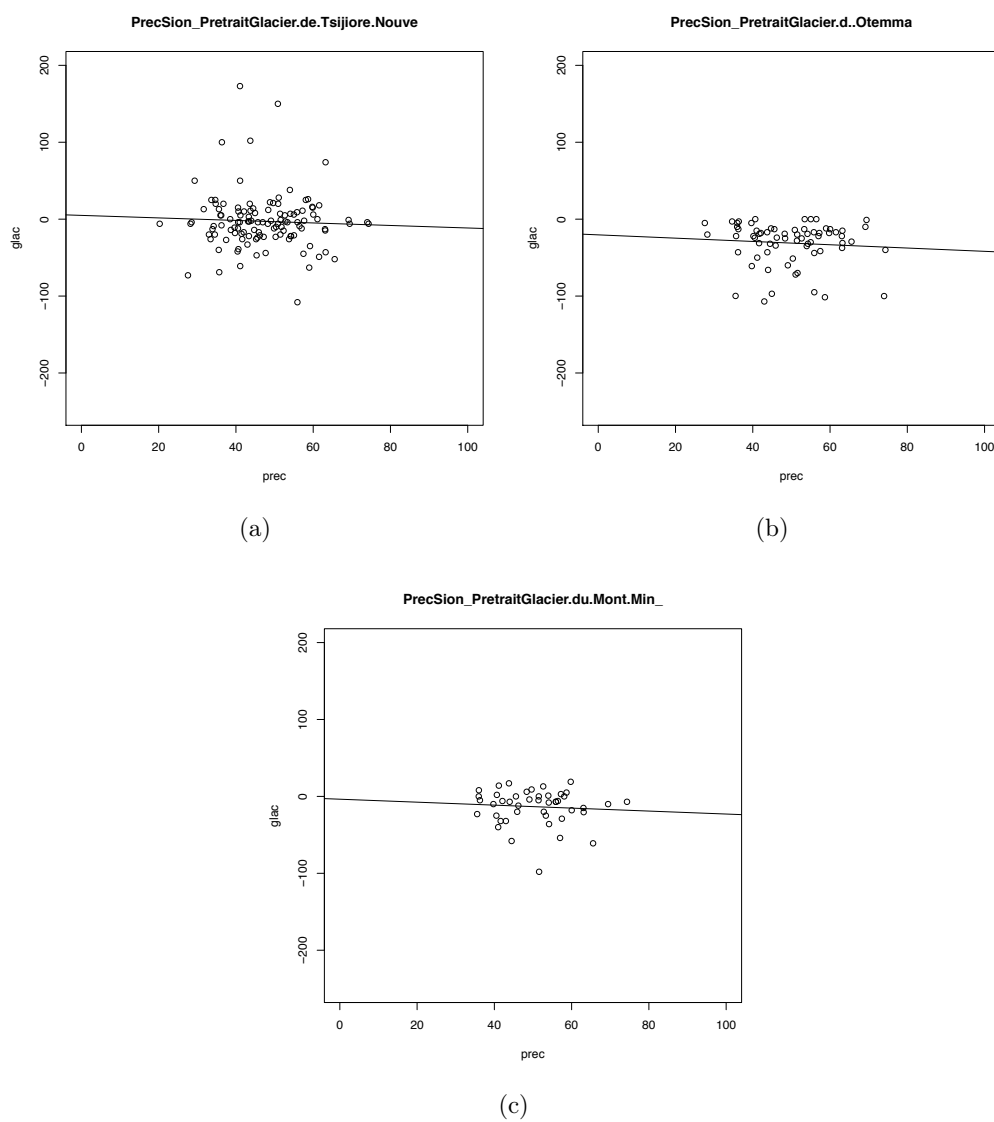


FIGURE 65 – Précipitations versus retrait du glacier, avec 2 ans de décalage

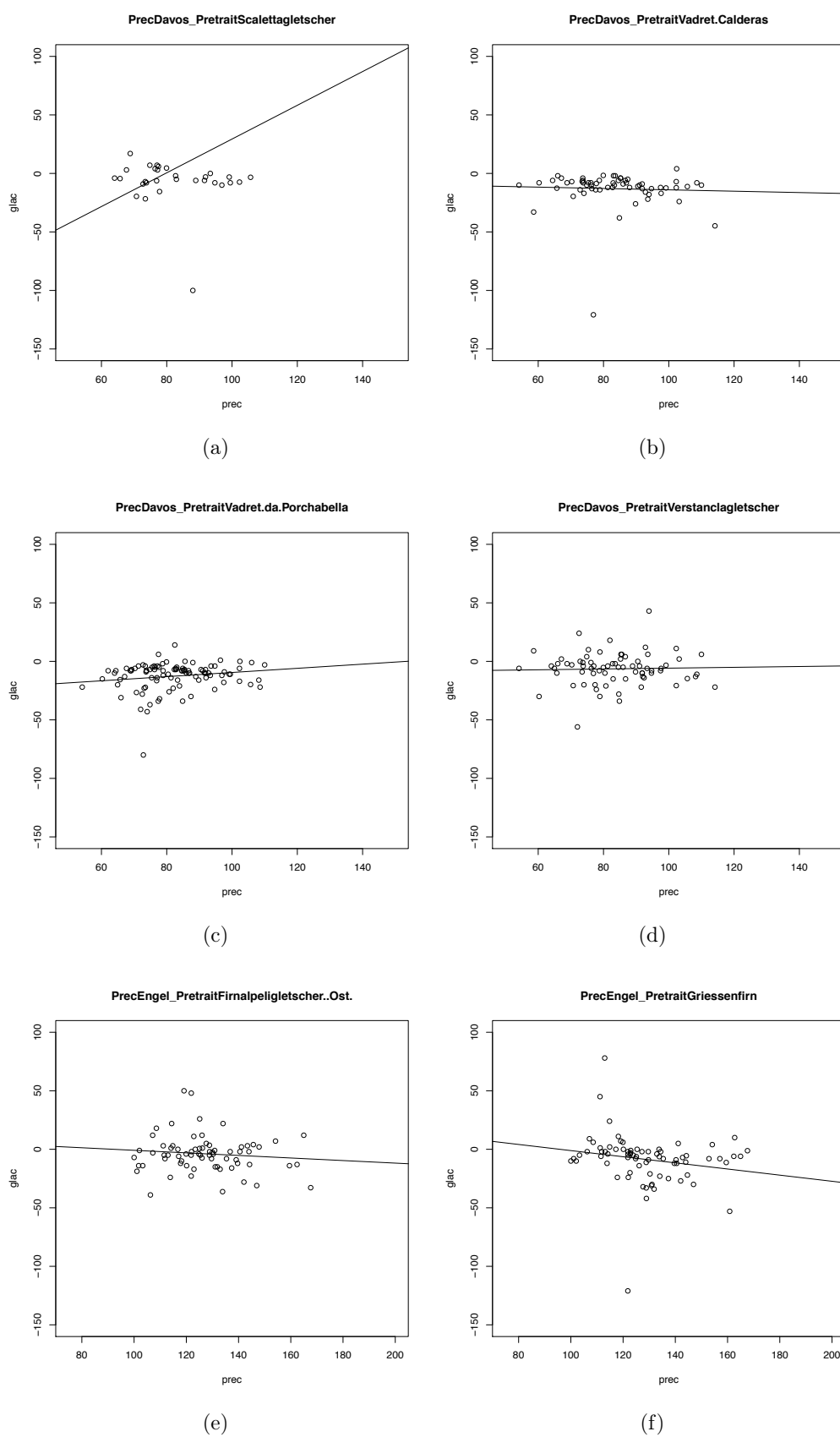


FIGURE 66 – Précipitations versus retrait du glacier, avec 3 ans de décalage

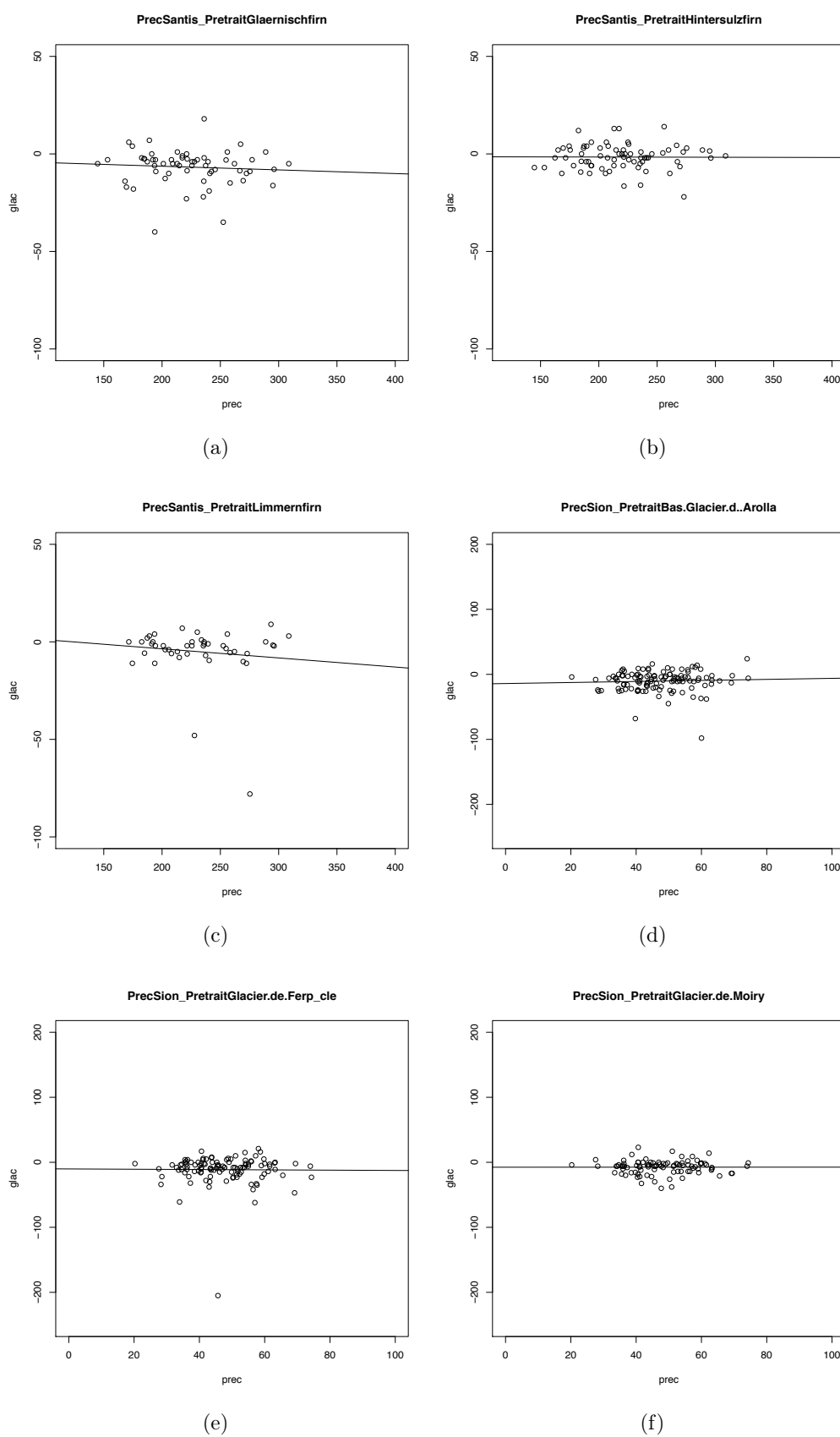


FIGURE 67 – Précipitations versus retrait du glacier, avec 3 ans de décalage

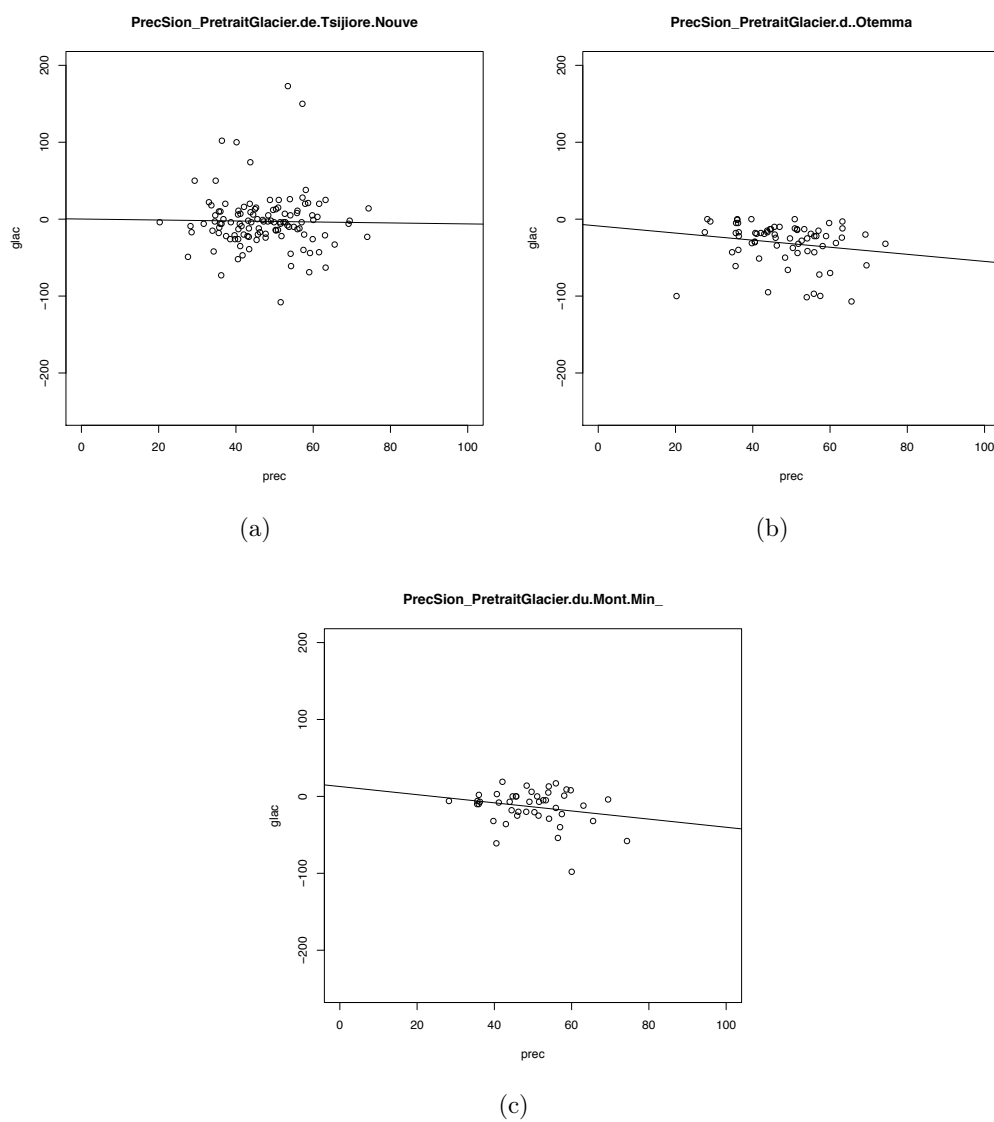


FIGURE 68 – Précipitations versus retrait du glacier, avec 3 ans de décalage

B.6 Corrélation des précipitations et des glaciers selon le test de Mann-Kendall

TABLE 6 – Corrélation entre les précipitations à Davos et les valeurs des glaciers alentours

Nom du glacier	Syncronisation	Décalage de 1 an	Décalage de 2 ans	Décalage de 3 ans
Verstancлагletscher	0.036	0.19	0.029	-0.034
Vadret Calderas	0.013	0.05	0.101	-0.15
Vadret da Porchabella	0.07	0.14	-0.069	0.074
Scalettagletscher	0.202	0.036	0.19	-0.04

TABLE 7 – Corrélation entre les précipitations à Engelberg et les valeurs des glaciers alentours

Nom du glacier	Syncronisation	Décalage de 1 an	Décalage de 2 ans	Décalage de 3 ans
Griessenfirn	0.14	0.004	-0.016	-0.21
Firnalpeligletscher	0.103	-0.16	-0.0079	-0.038

TABLE 8 – Corrélation entre les précipitations à Säntis et les valeurs des glaciers alentours

Nom du glacier	Syncronisation	Décalage de 1 an	Décalage de 2 ans	Décalage de 3 ans
Hintersulzfirn	-0.04	-0.064	-0.064	0.013
Plattalvagletscher	0.003	-0.30	-0.015	-0.14
Glaernischfirn	0.002	-0.04	0.15	-0.122
Limmernfirn	0.04	-0.17	-0.0030	-0.077

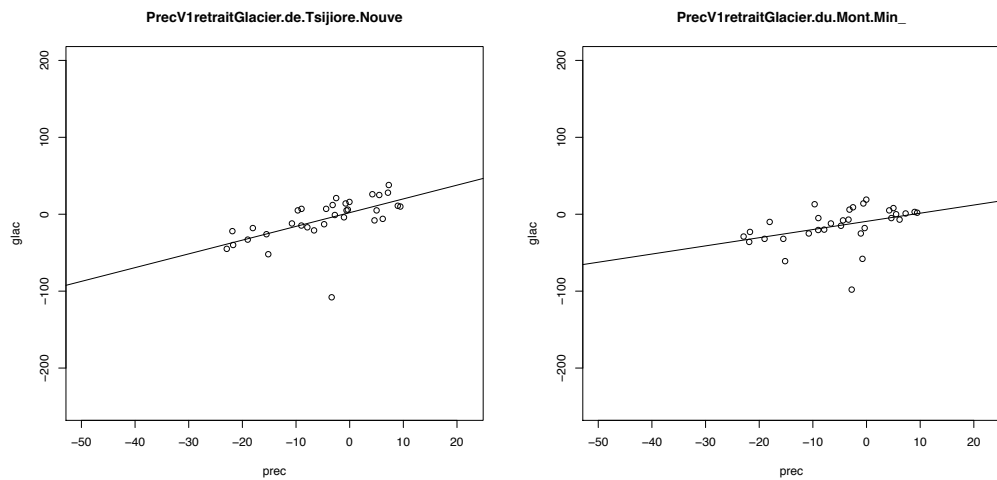
TABLE 9 – Corrélation entre les piézomètres et les glaciers les valaisans avec décalage

Nom du glacier	Syncronisation	1 an	2 ans	3 ans
Glacier du Mont Miné	-0.036	0.059	-0.057	-0.053
Glacier d' Otemma	-0.11	-0.037	-0.058	-0.18
Glacier de Moiry	0.063	0.112	0.064	0.013
Glacier de Tsijiore Nouve	0.02	0.00727	-0.0075	0.004
Bas Glacier d' Arolla	0.076	0.05	0.024	0.054
Glacier de Ferpêcle	-0.02	0.07	0.023	0.0029

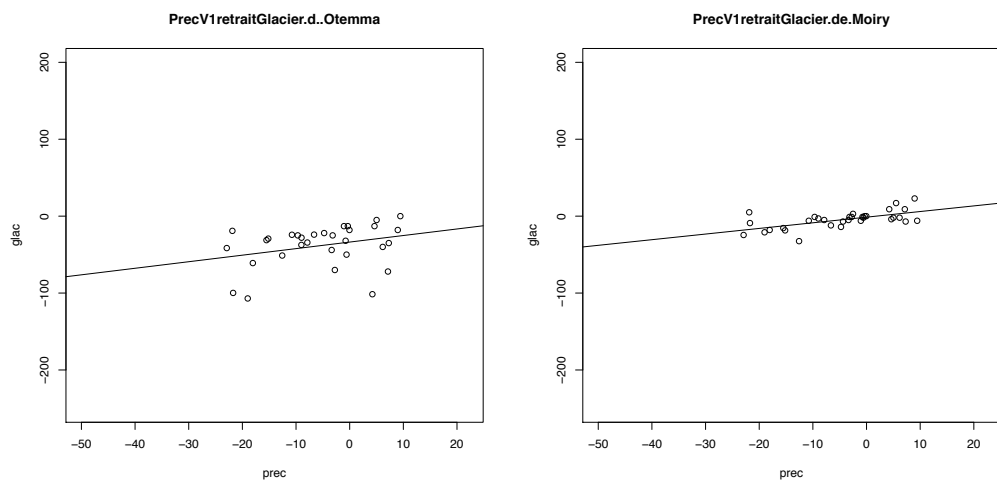
TABLE 10 – Corrélation entre les piézomètres et les glaciersles valaisans avec décalage

Nom du glacier	Syncronisation	1 an	2 ans	3 ans
Glacier du Mont Miné	0.41	0.37	0.39	0.35
Otemma	0.25	0.10	0.09	0.058
Glacier de Moiry	0.45	0.53	0.56	0.47
Glacier de Tsijiore Nouve	0.56	0.64	0.64	0.57
Bas Glacier d' Arolla	0.52	0.61	0.64	0.60
Glacier de Ferpêcle	0.46	0.54	0.51	0.47

B.7 Piézomètres valaisans versus retrait du glacier, sans décalage

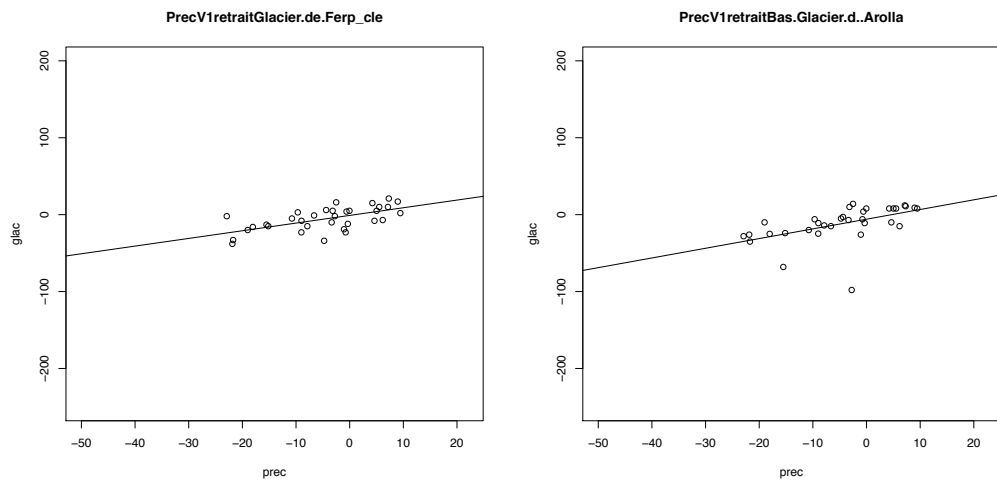


(a) Piézomètres valaisans versus retrait du glacier, sans décalage (b) Piézomètres valaisans versus retrait du glacier, sans décalage

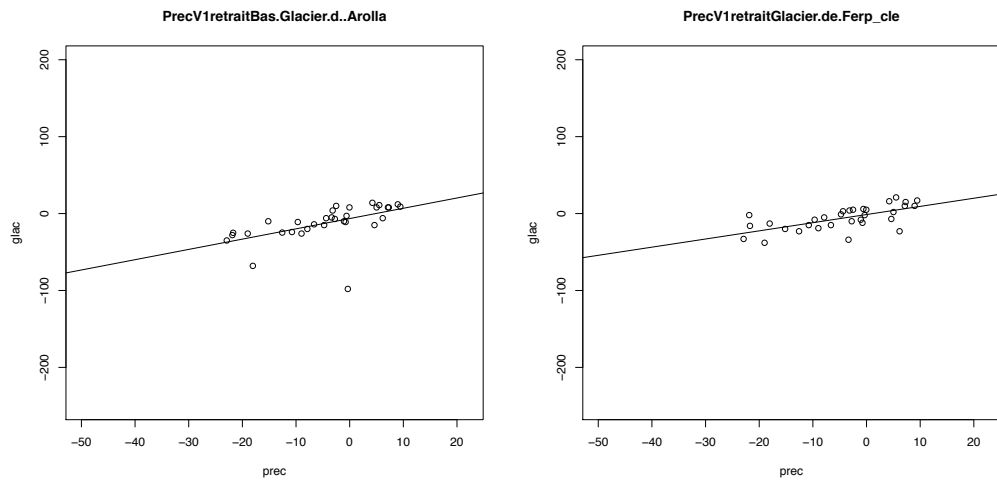


(c) Piézomètres valaisans versus retrait du glacier, sans décalage (d) Piézomètres valaisans versus retrait du glacier, sans décalage

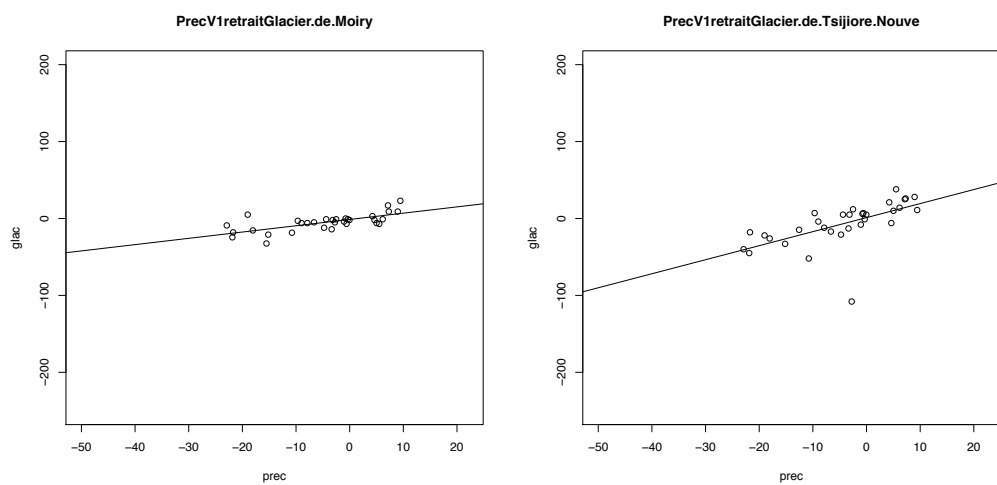
FIGURE 69 – Piézomètres valaisans versus retrait du glacier, sans décalage



(a) Piézomètres valaisans versus retrait du glacier, sans décalage (b) Piézomètres valaisans versus retrait du glacier, sans décalage

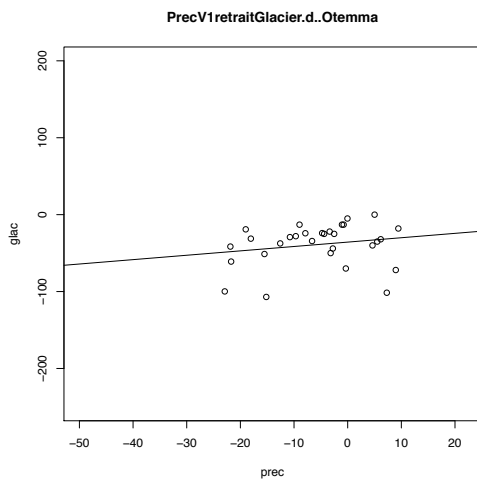


(c) Piézomètres vs BasGlacierdArolla, 1 an décalage (d) Piézomètres vs GlacierdeFerpecl, 1 an décalage

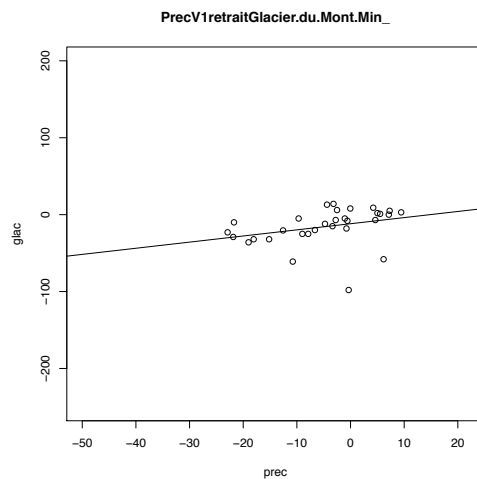


(e) Piézomètres vs GlacierdeMoiry, 1 an décalage (f) Piézomètres vs GlacierdeTsijioreNouve, 1 an décalage

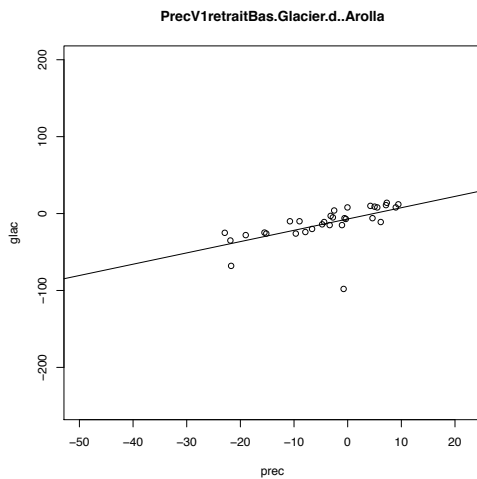
FIGURE 70 – Piézomètres valaisans versus retrait du glacier, sans décalage



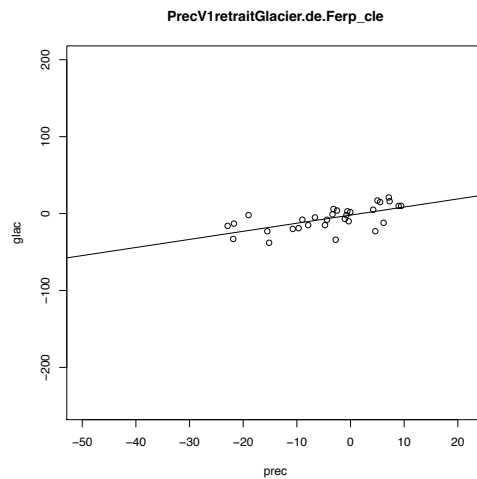
(a) Piézomètres vs GlacierdOtemma, 1 an décalage



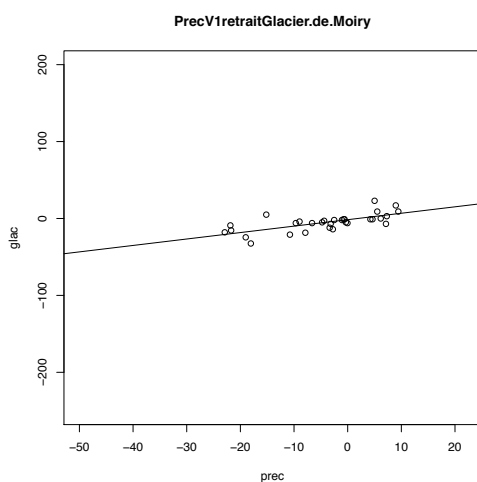
(b) Piézomètres vs GlacierduMontMine, 1 an décalage



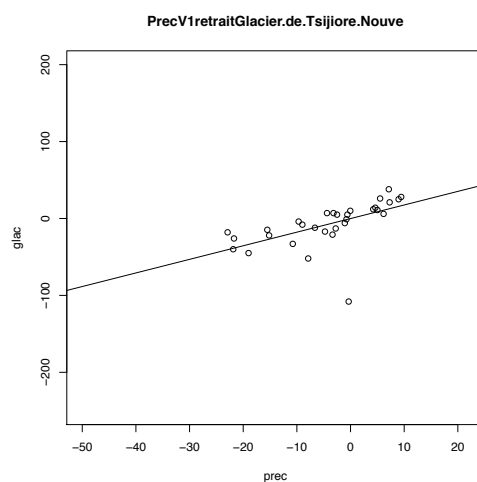
(c) Piézomètres vs BasGlacierdArolla, 2 ans décalage



(d) Piézomètres vs GlacierdeFerpectle, 2 ans décalage

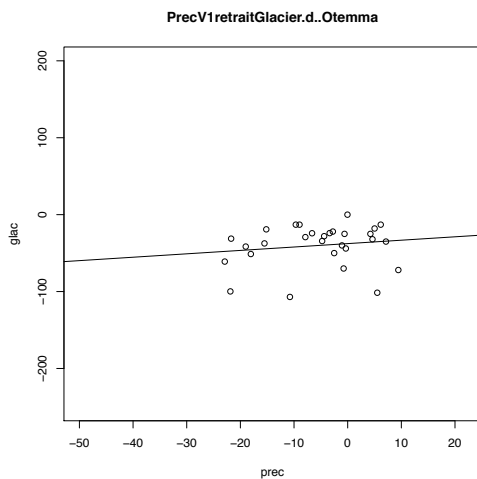


(e) Piézomètres vs GlacierdeMoiry, 2 ans décalage

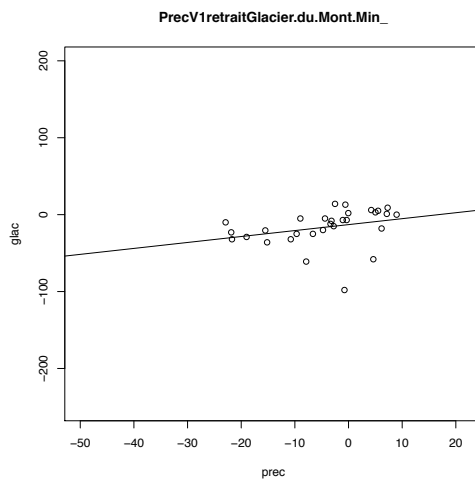


(f) Piézomètres vs GlacierdeTsijioreNouve, 2 ans décalage

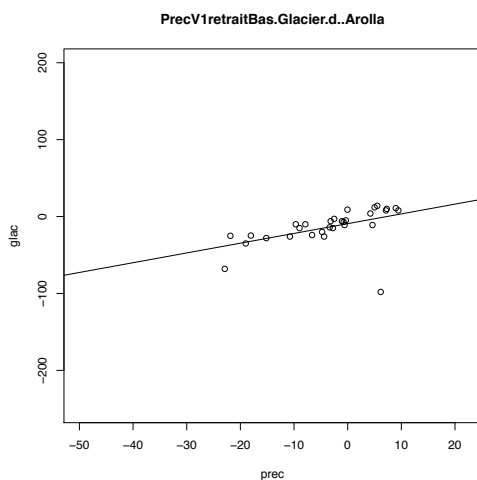
FIGURE 71 – Piézomètres versus retrait du glacier, avec 1 ou 2 ans de décalage



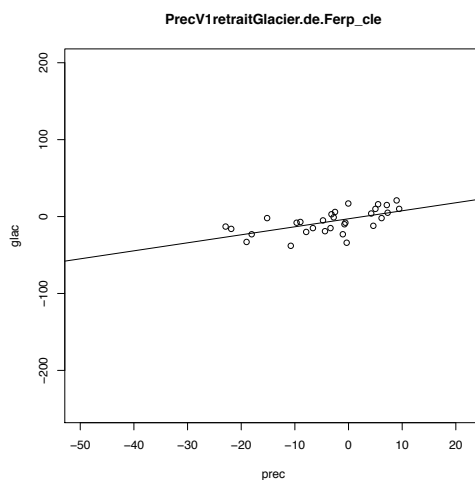
(a) Piézomètres vs GlacierdOtemma, 2 ans décalage



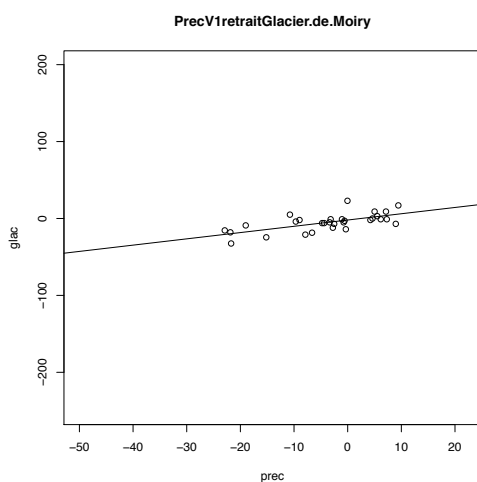
(b) Piézomètres vs GlacierduMontMine, 2 ans décalage



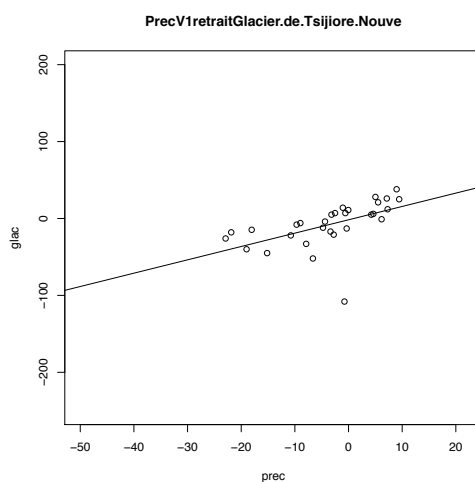
(c) Piézomètres vs BasGlacierdArolla, 3 ans décalage



(d) Piézomètres vs GlacierdeFerpectle, 3 ans décalage

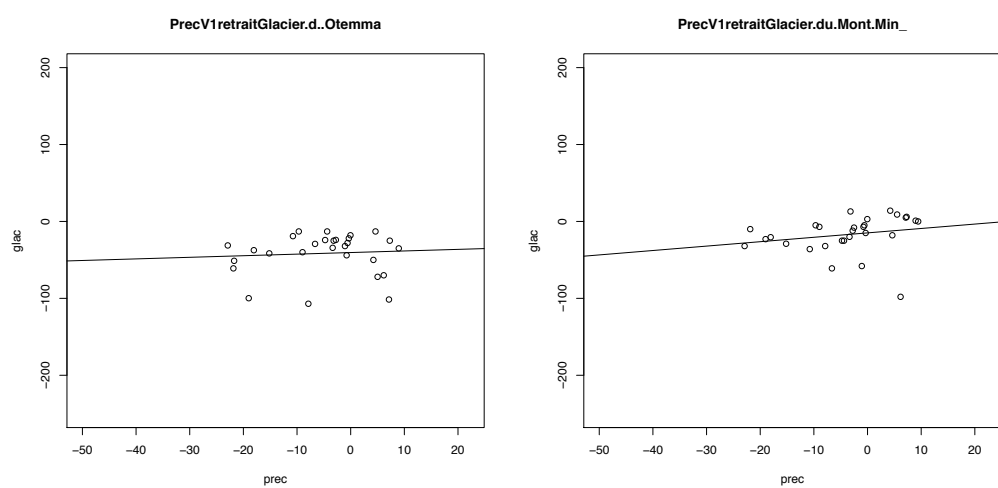


(e) Piézomètres vs GlacierdeMoiry, 3 ans décalage



(f) Piézomètres vs GlacierdeTsijioreNouve, 3 ans décalage

FIGURE 72 – Piézomètres versus retrait du glacier, avec 2 ou 3 ans de décalage



(a) Pièzomètres vs Glaciers d'Otemma, 3 ans de décalage
(b) Pièzomètres vs Glacier du Mont Mine, 3 ans de décalage

FIGURE 73 – Pièzomètres versus retrait du glacier, avec 3 ans de décalage

B.8 Stationnarité du retrait des glaciers

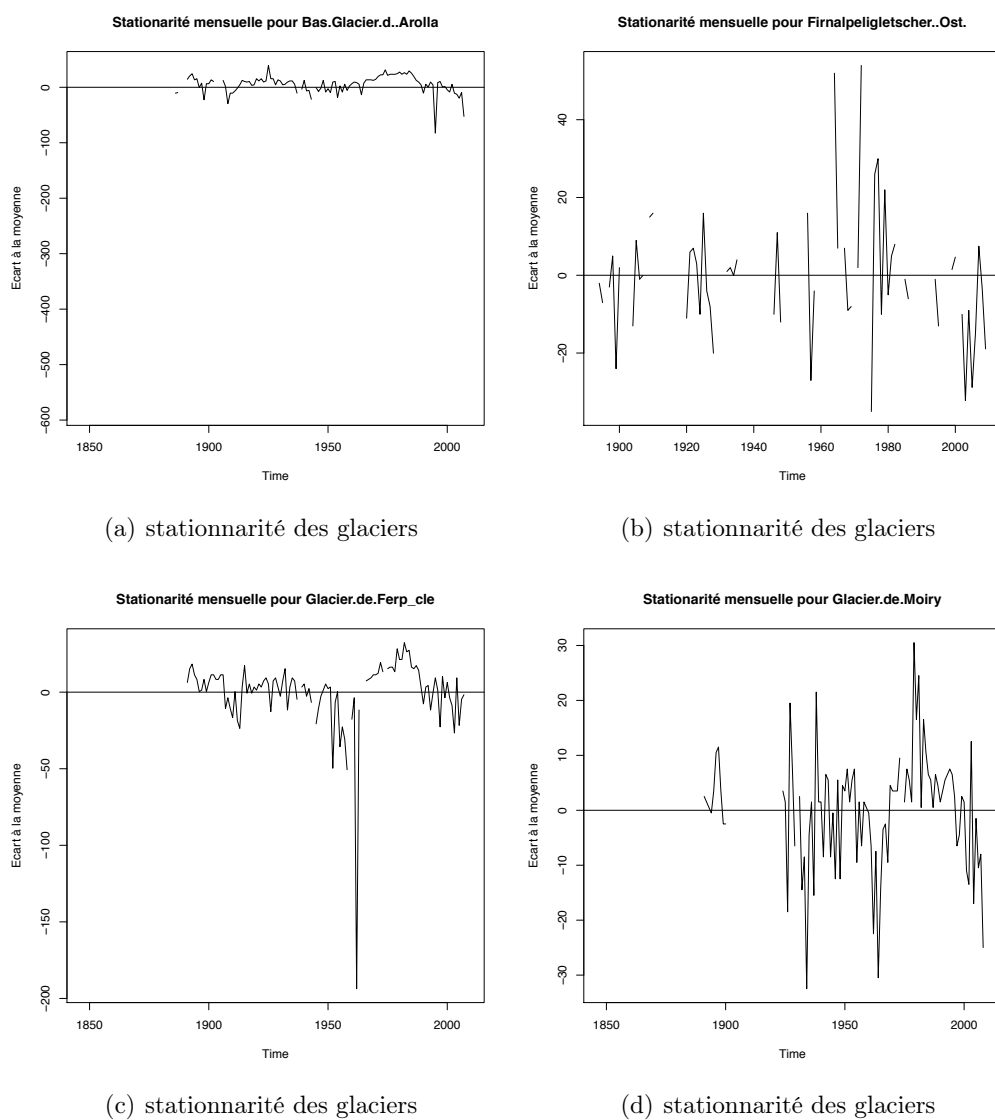
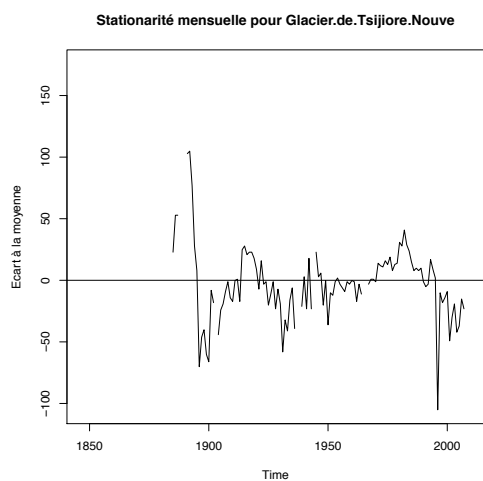
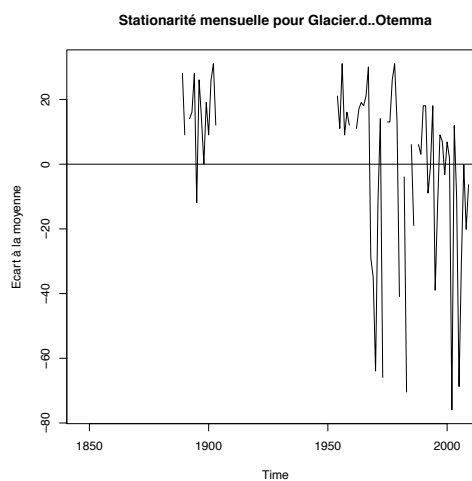


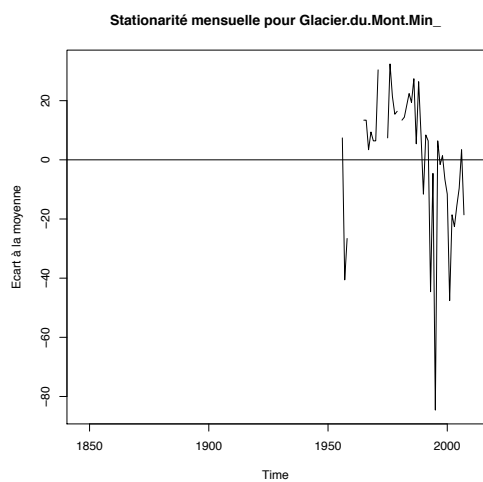
FIGURE 74 – Précipitations versus retrait du glacier



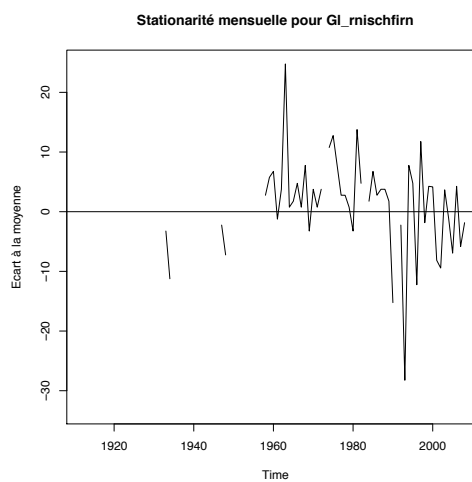
(a) stationnarité des glaciers



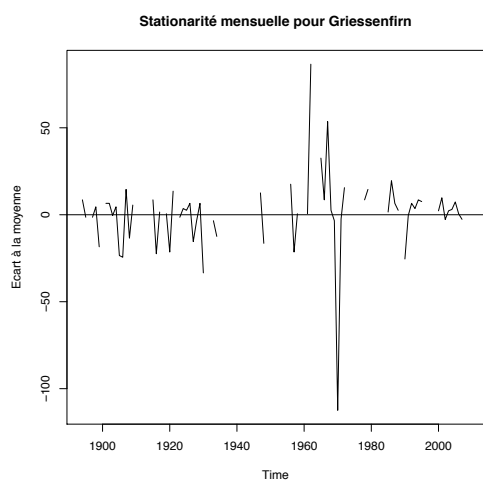
(b) stationnarité des glaciers



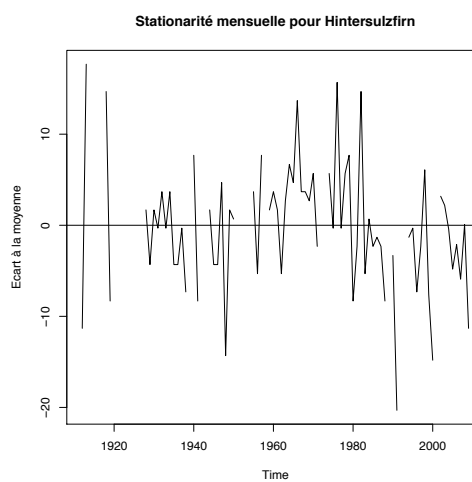
(c) stationnarité des glaciers



(d) stationnarité des glaciers



(e) stationnarité des glaciers



(f) stationnarité des glaciers

FIGURE 75 – Précipitations versus retrait du glacier

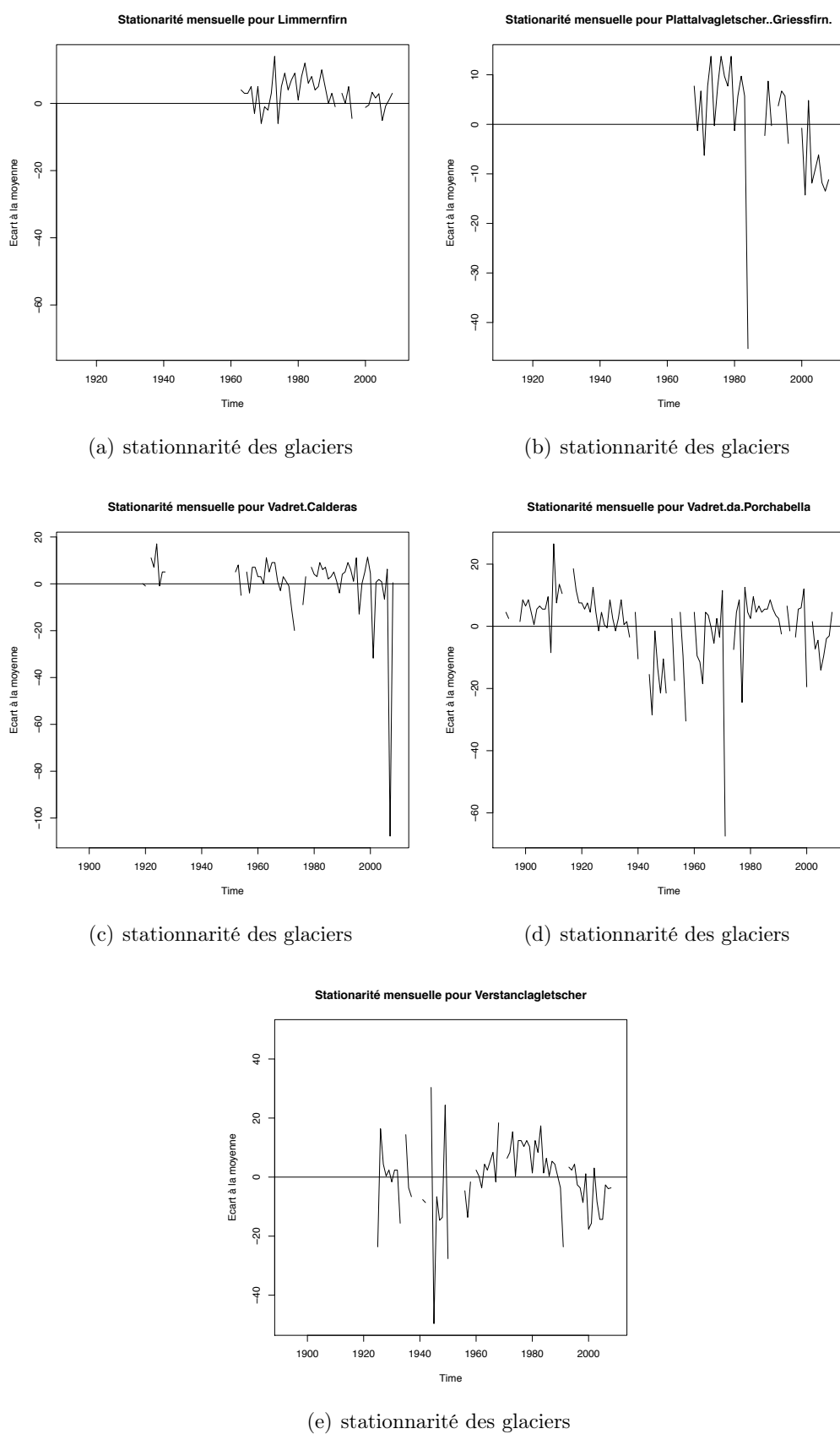
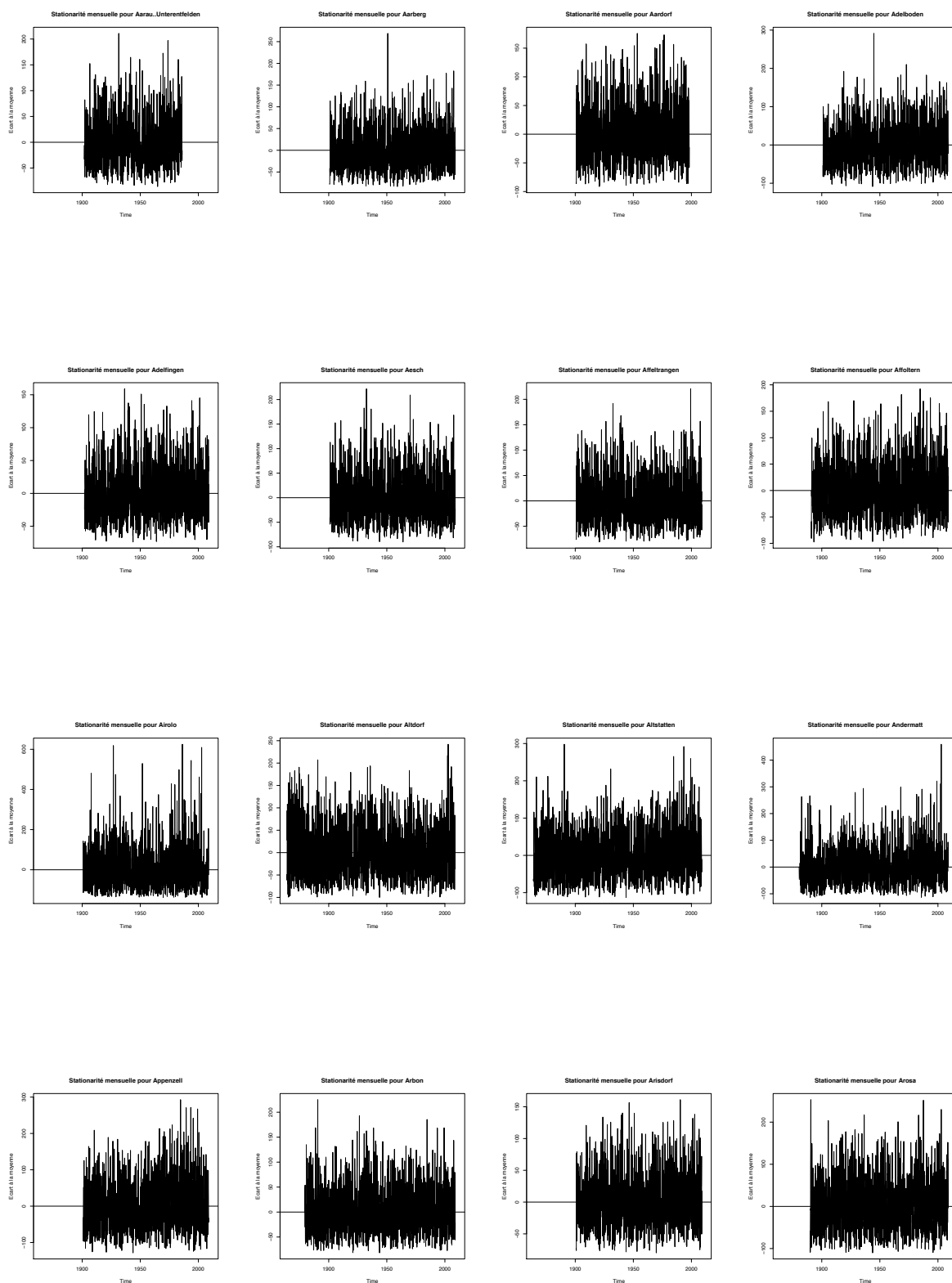
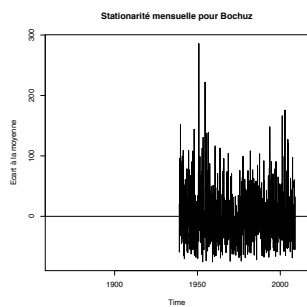
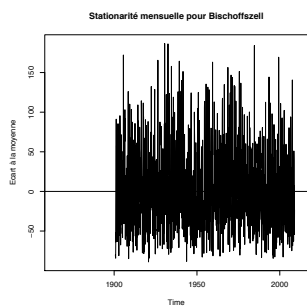
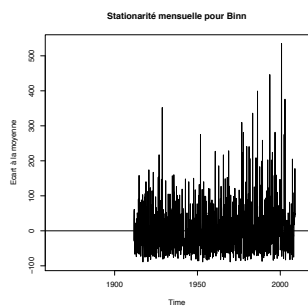
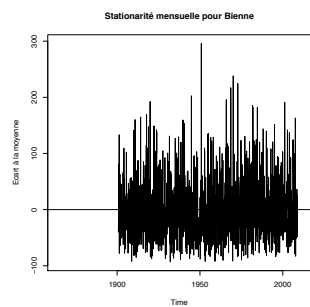
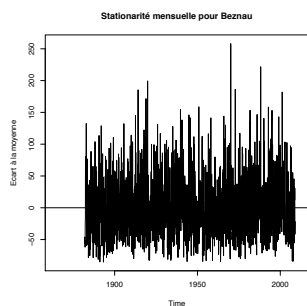
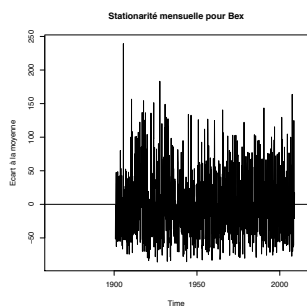
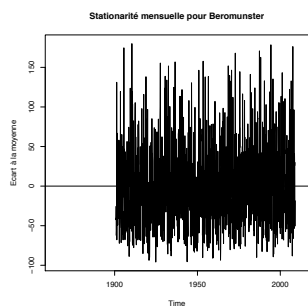
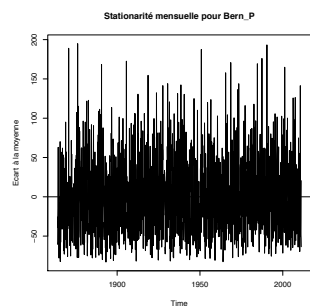
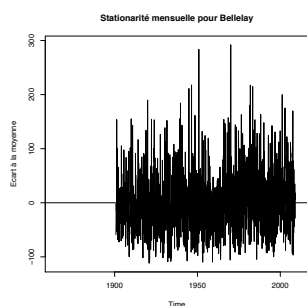
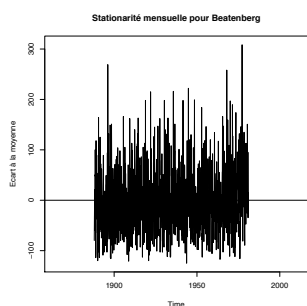
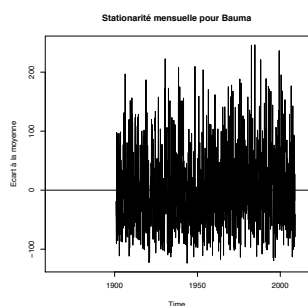
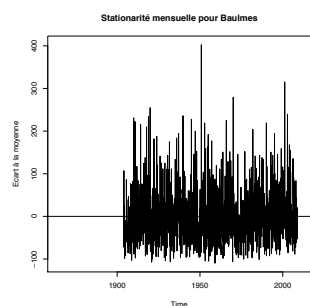
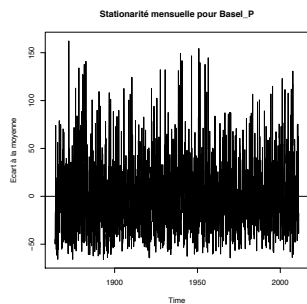
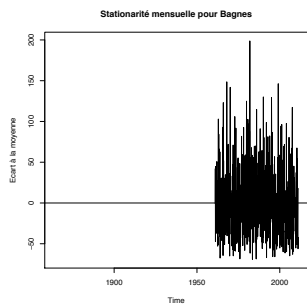
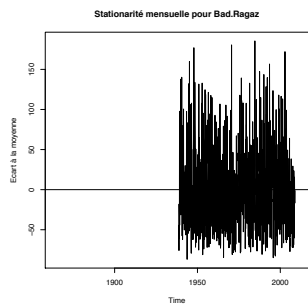
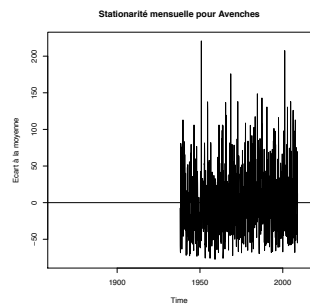


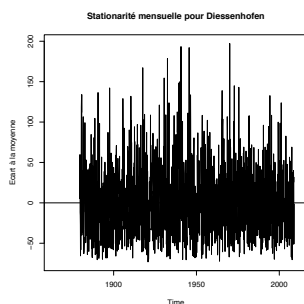
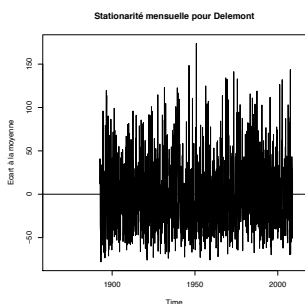
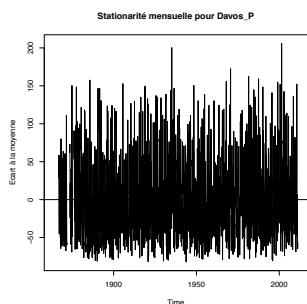
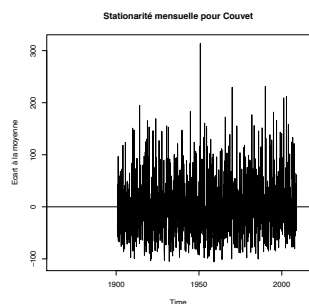
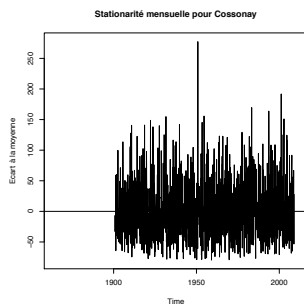
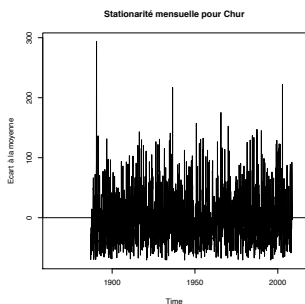
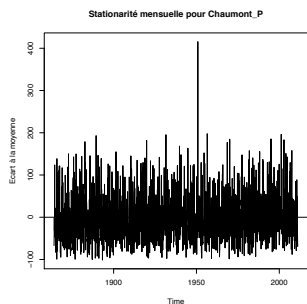
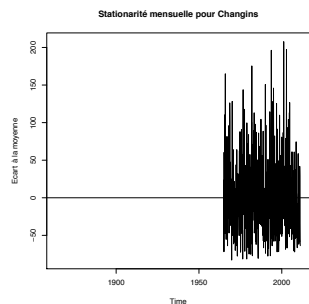
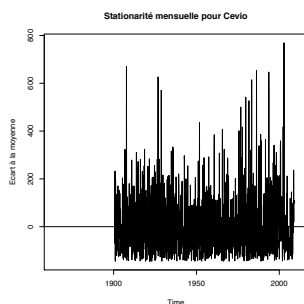
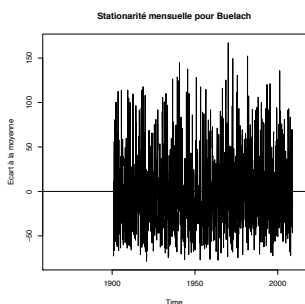
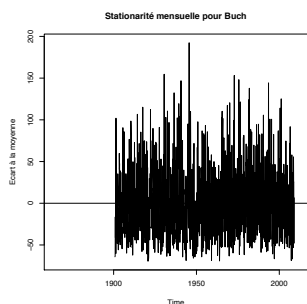
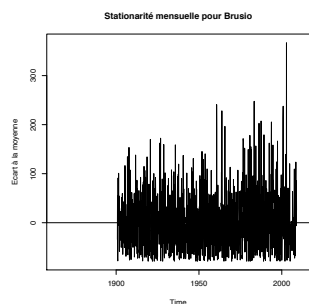
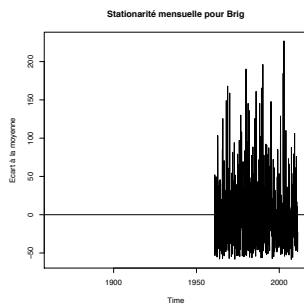
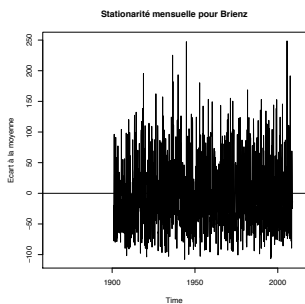
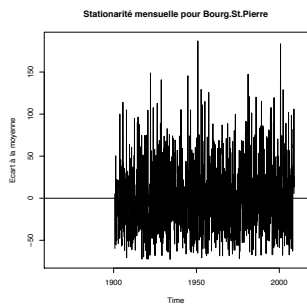
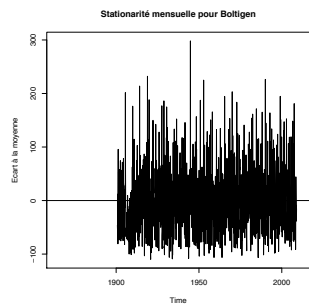
FIGURE 76 – Précipitations versus retrait du glacier

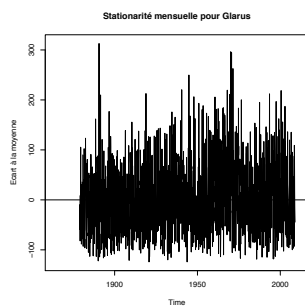
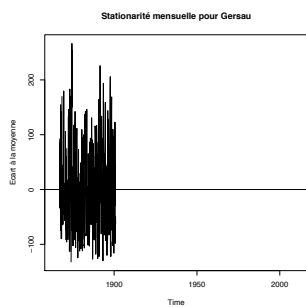
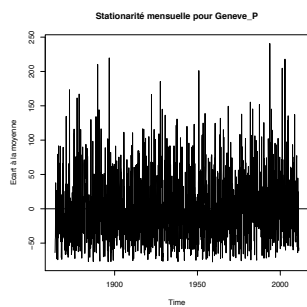
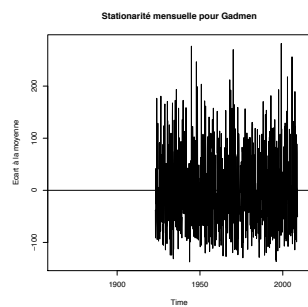
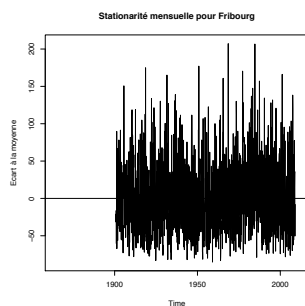
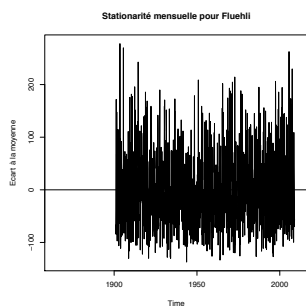
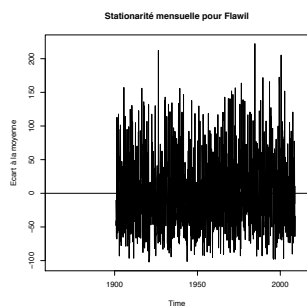
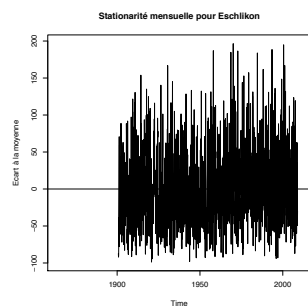
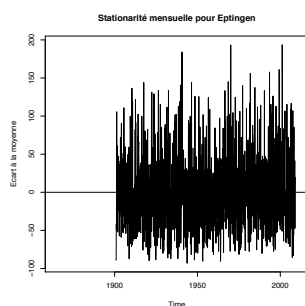
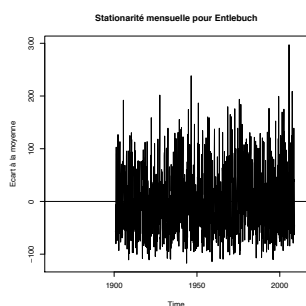
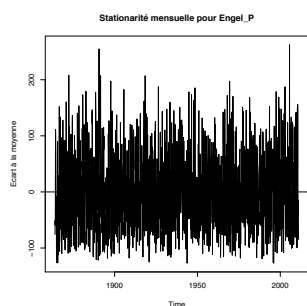
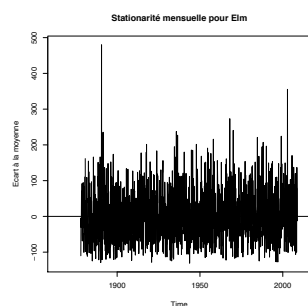
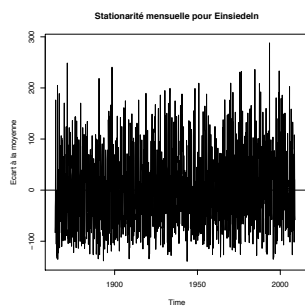
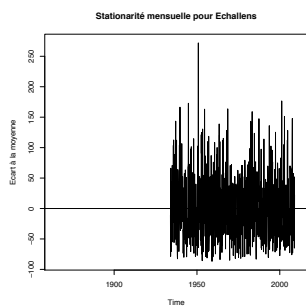
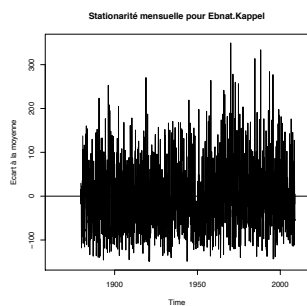
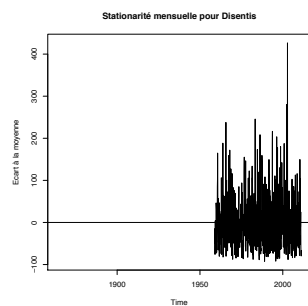
C Annexes de la partie 6

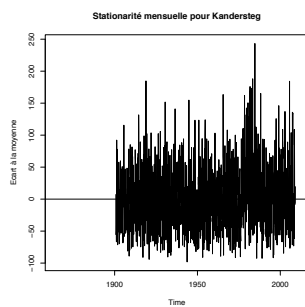
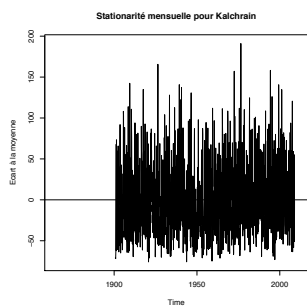
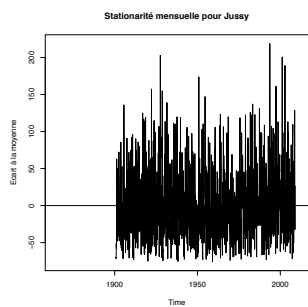
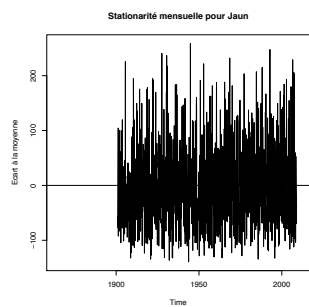
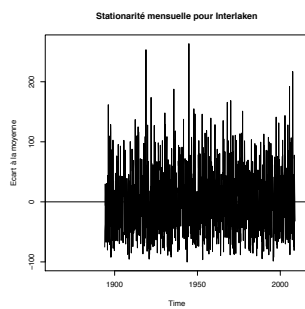
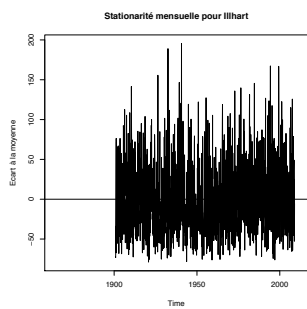
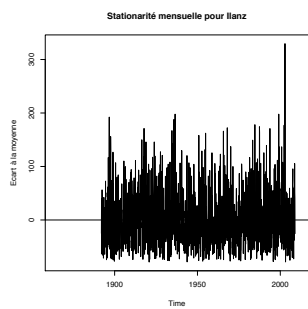
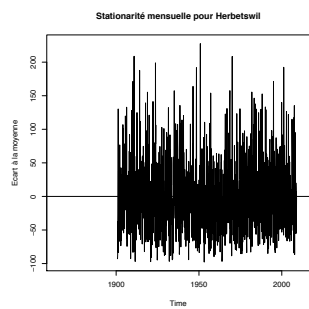
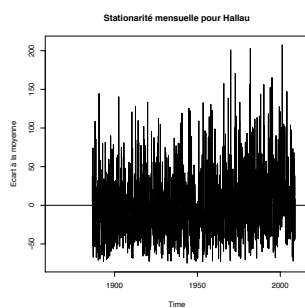
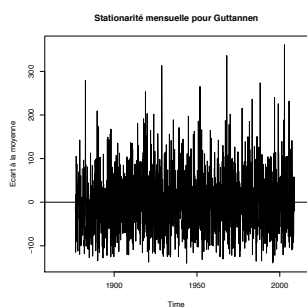
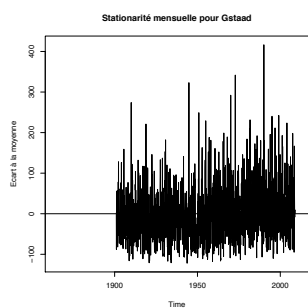
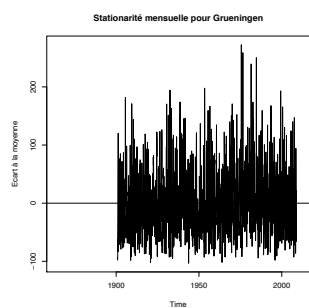
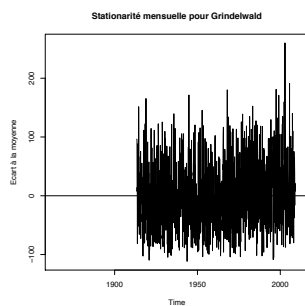
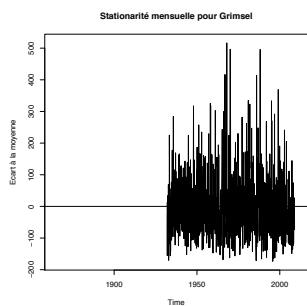
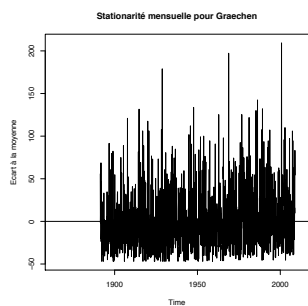
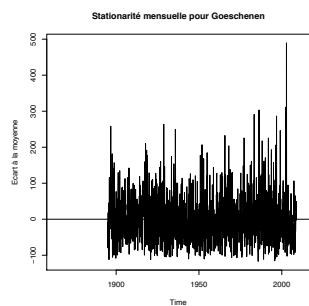
C.1 Stationnarité des précipitations

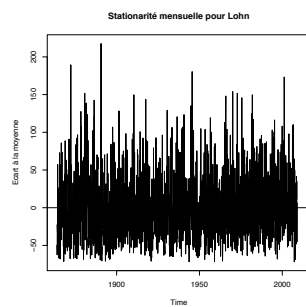
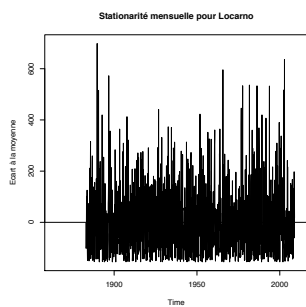
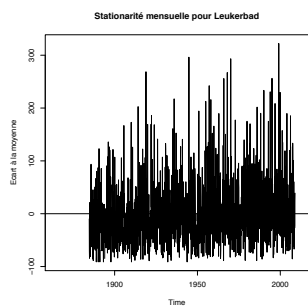
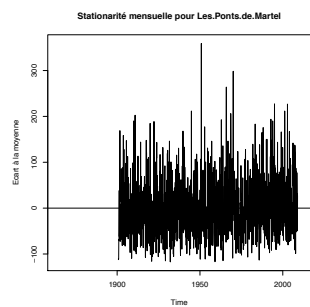
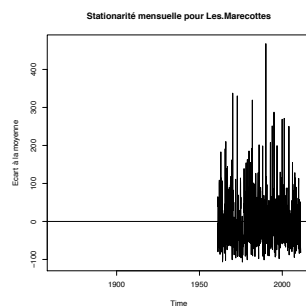
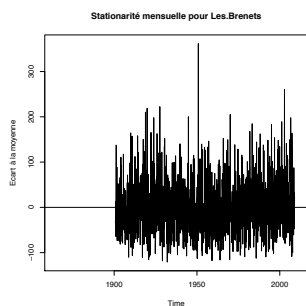
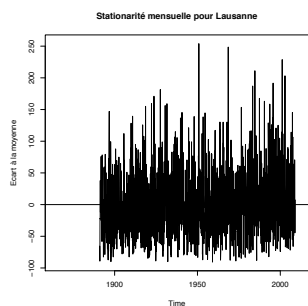
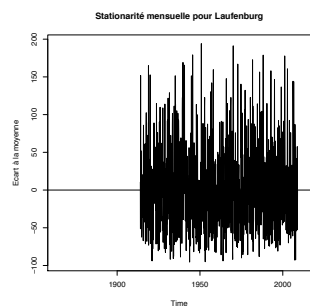
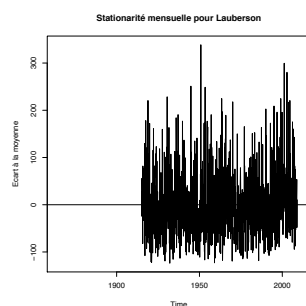
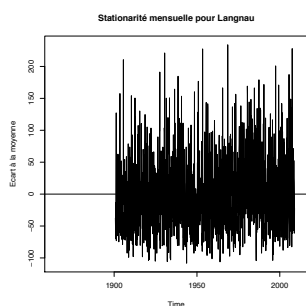
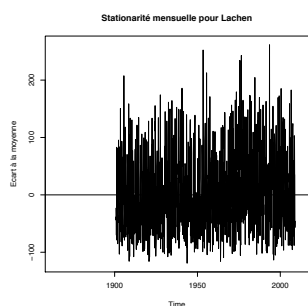
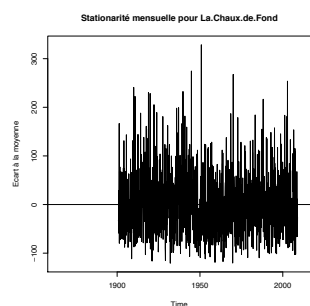
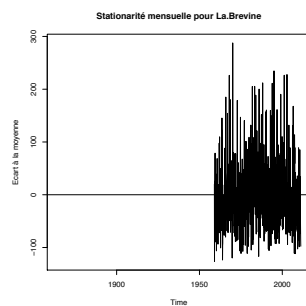
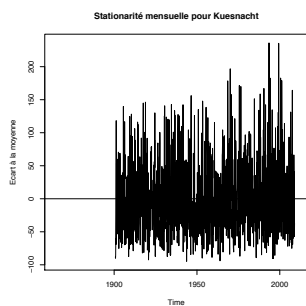
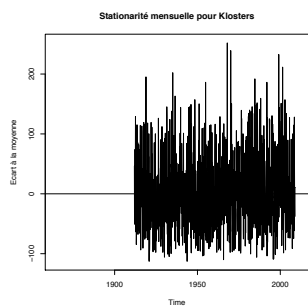
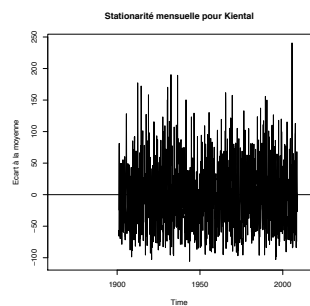


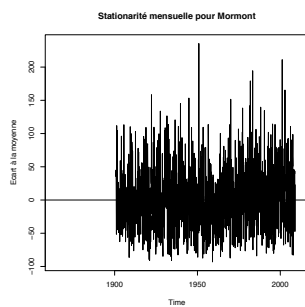
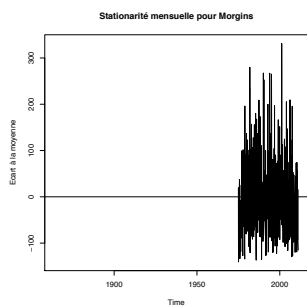
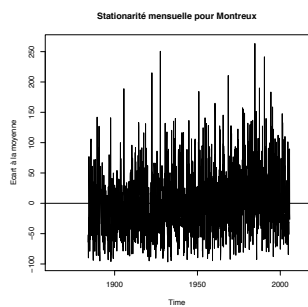
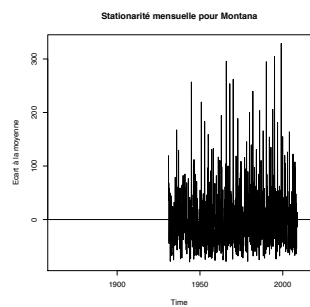
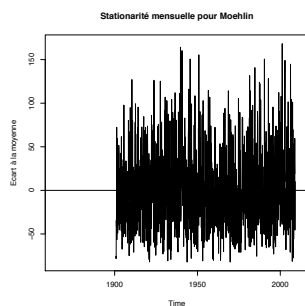
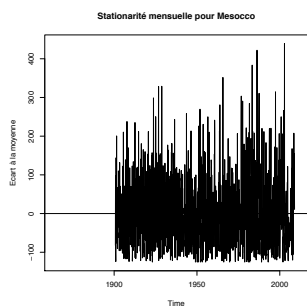
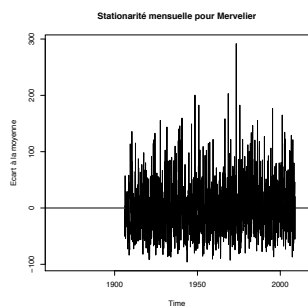
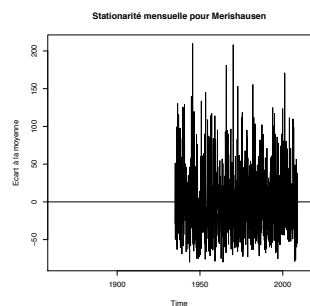
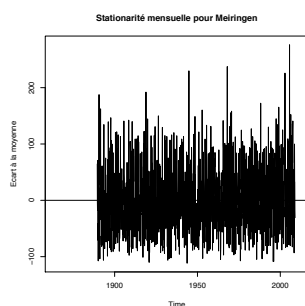
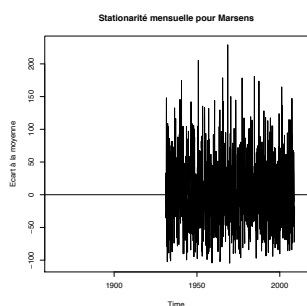
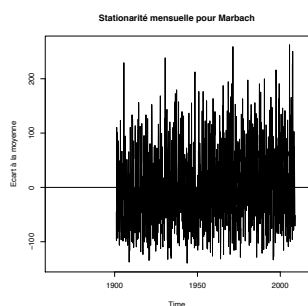
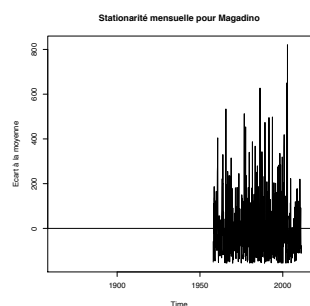
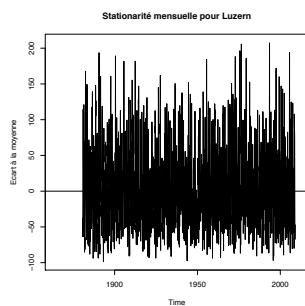
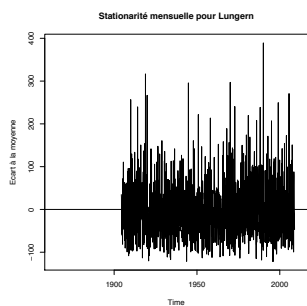
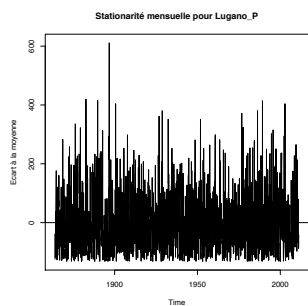
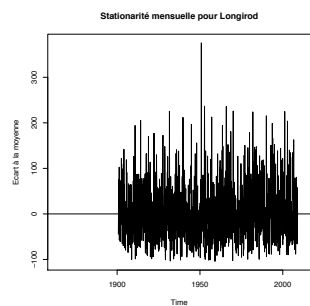


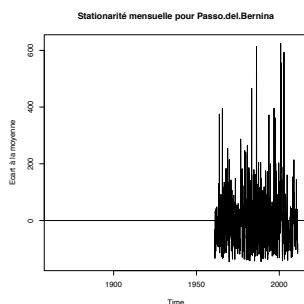
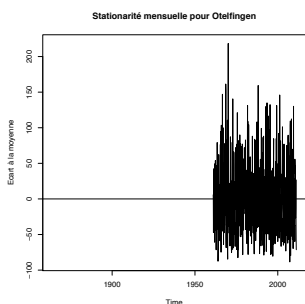
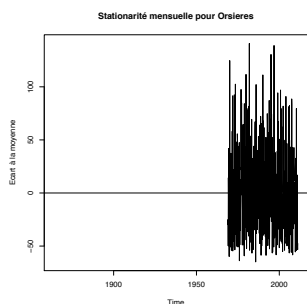
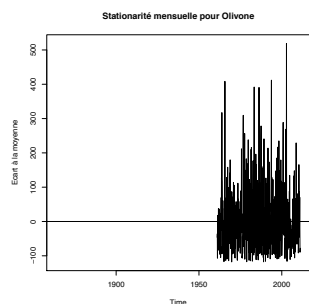
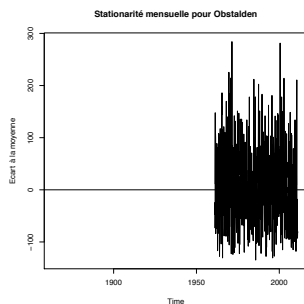
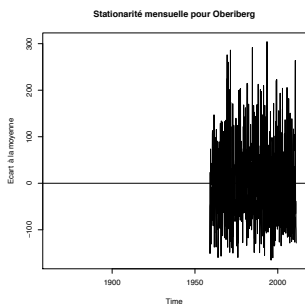
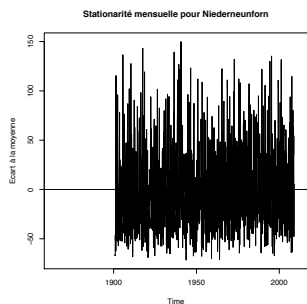
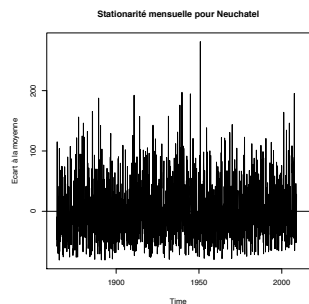
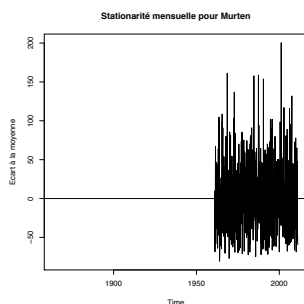
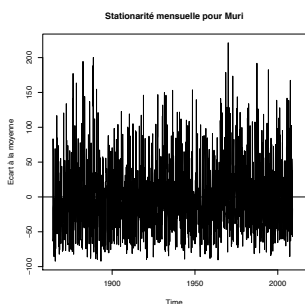
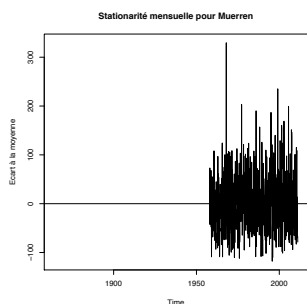
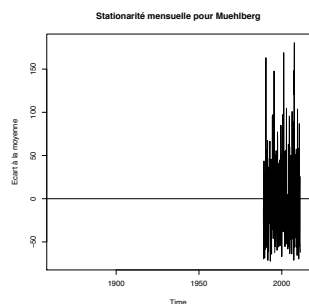
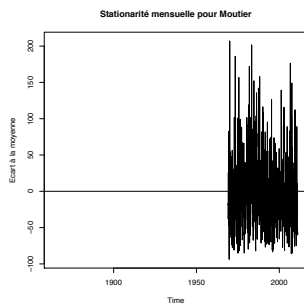
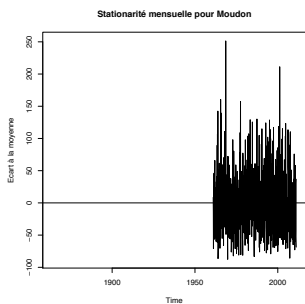
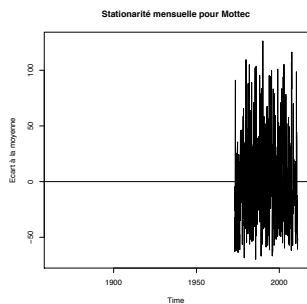
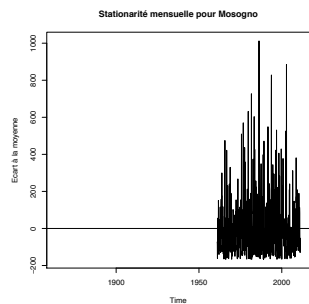


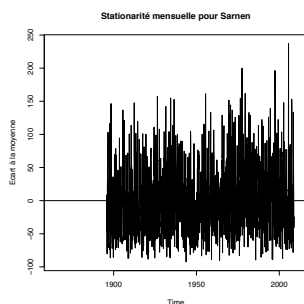
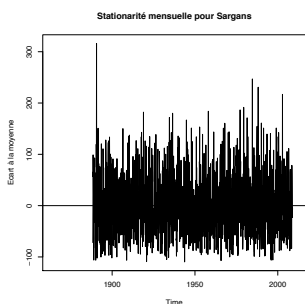
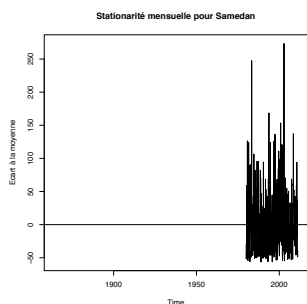
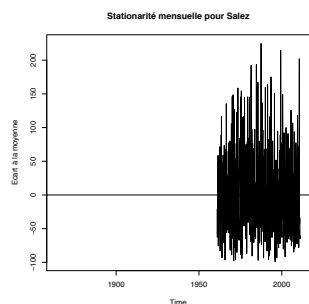
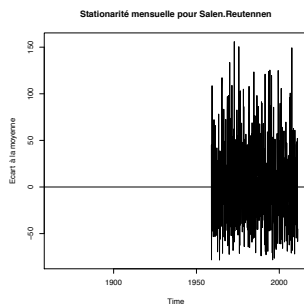
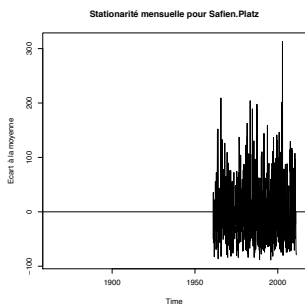
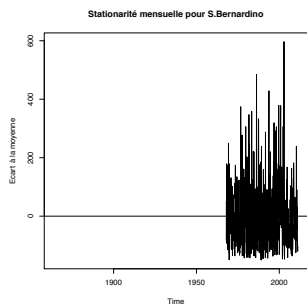
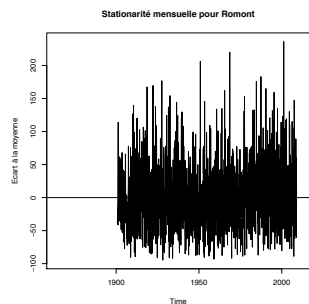
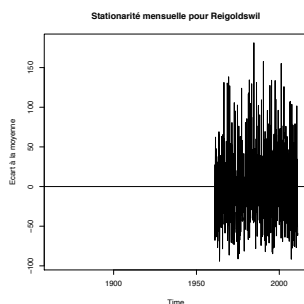
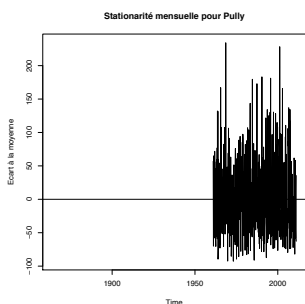
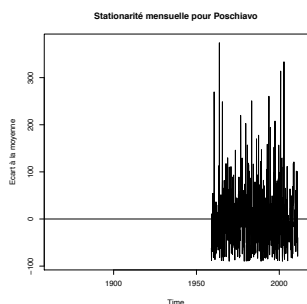
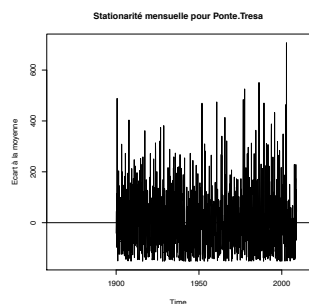
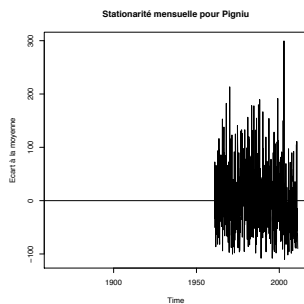
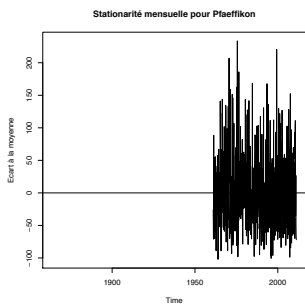
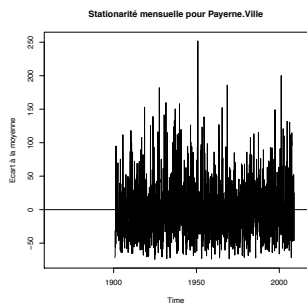
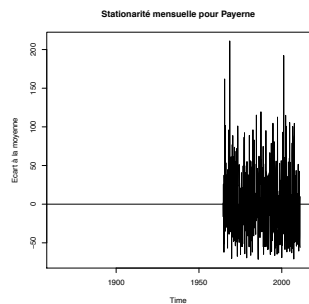


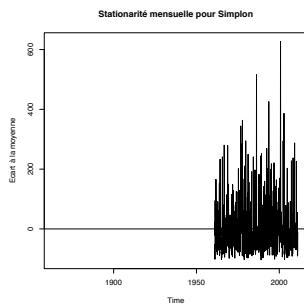
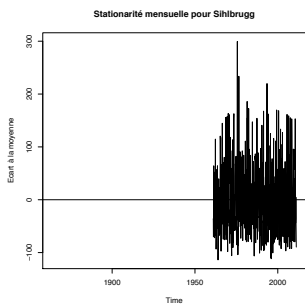
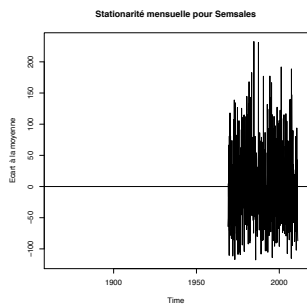
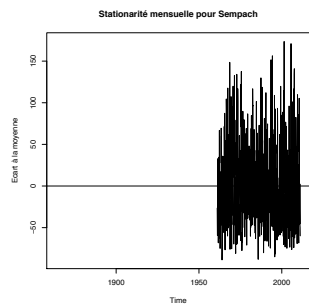
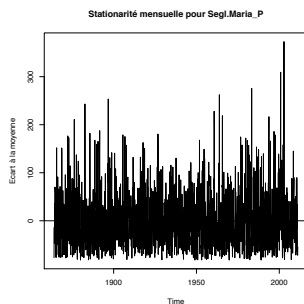
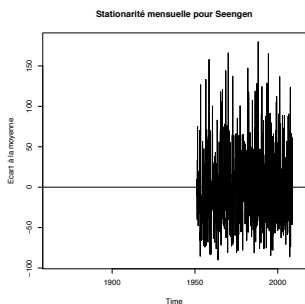
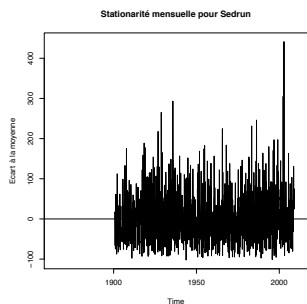
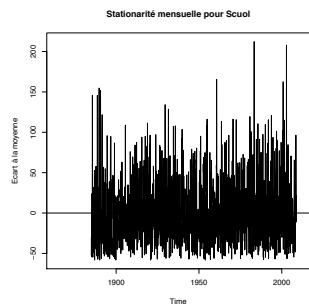
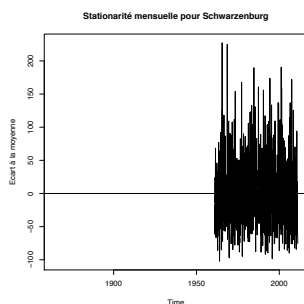
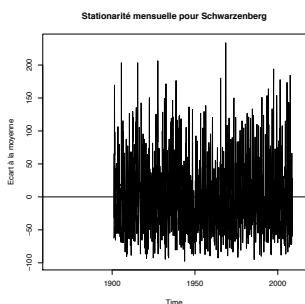
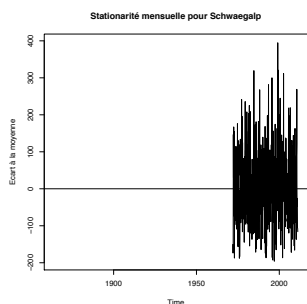
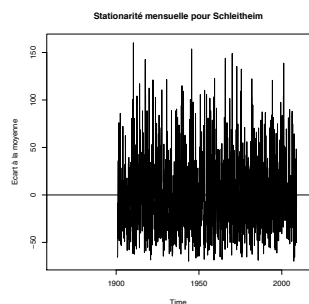
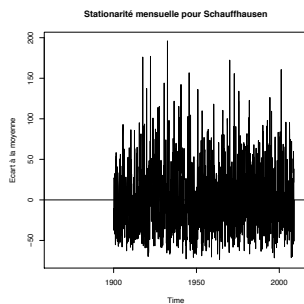
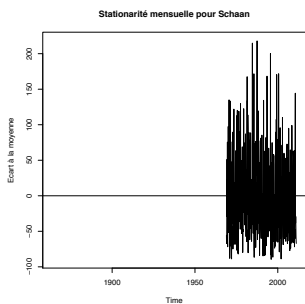
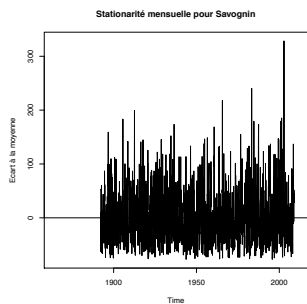
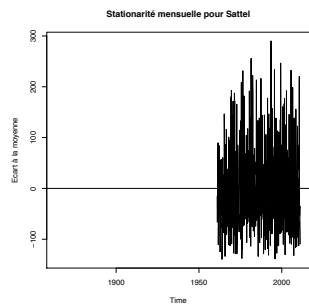


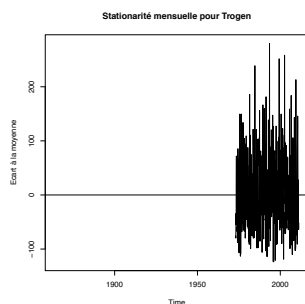
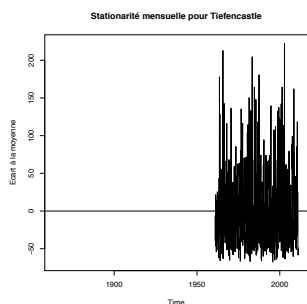
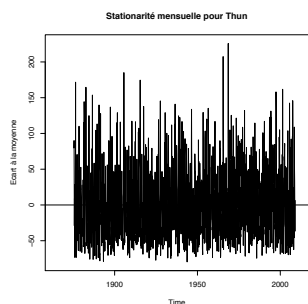
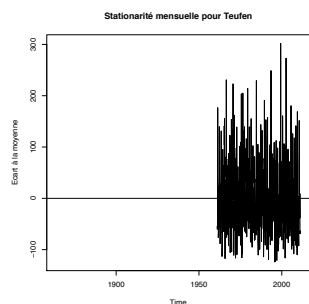
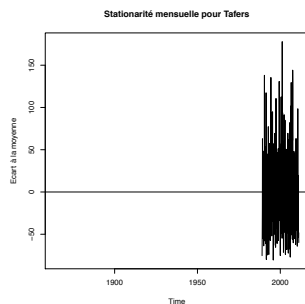
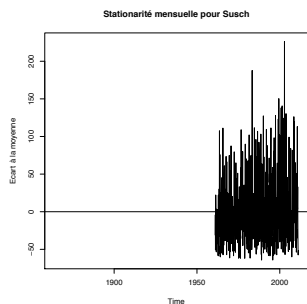
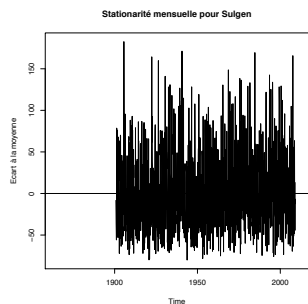
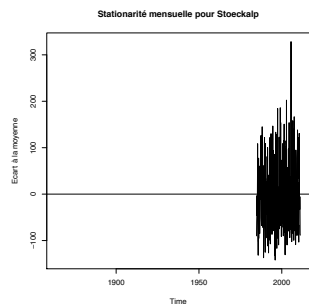
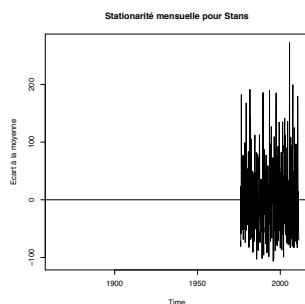
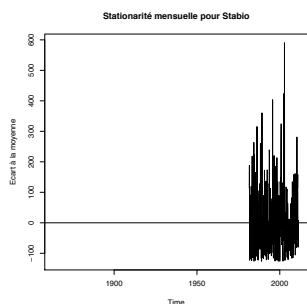
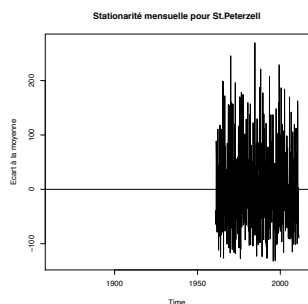
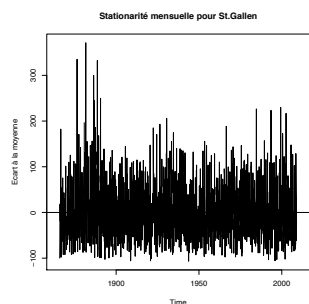
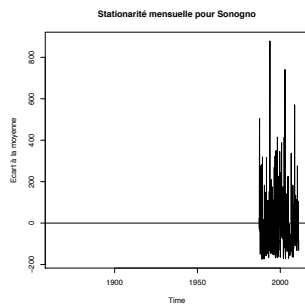
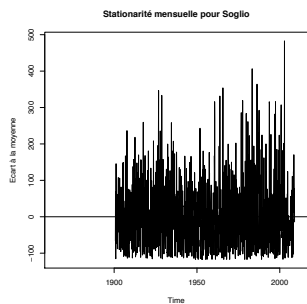
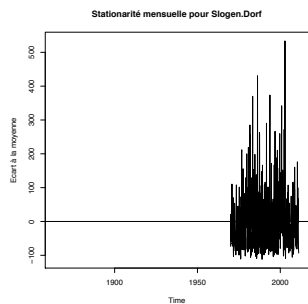
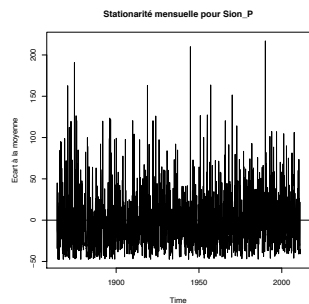


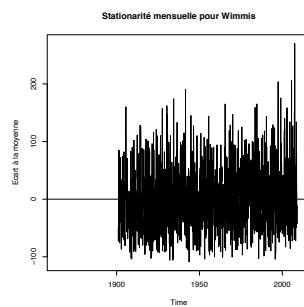
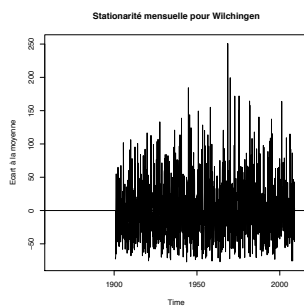
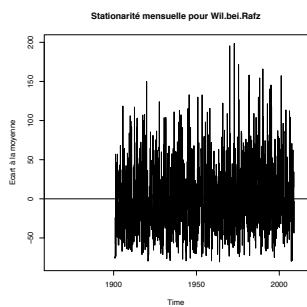
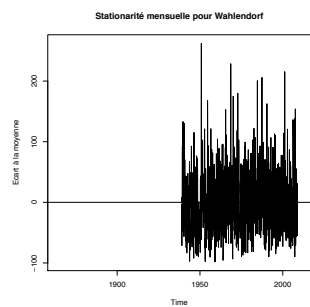
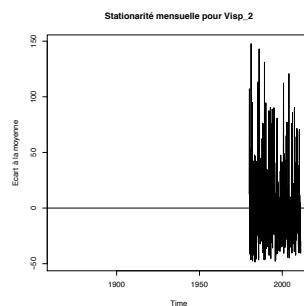
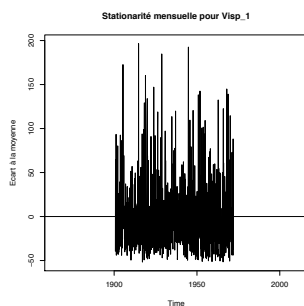
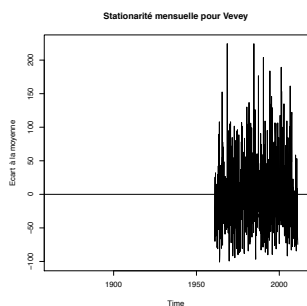
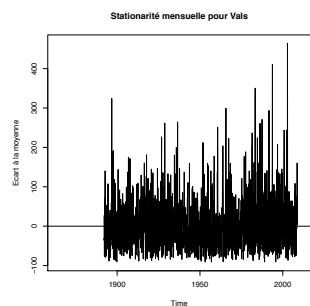
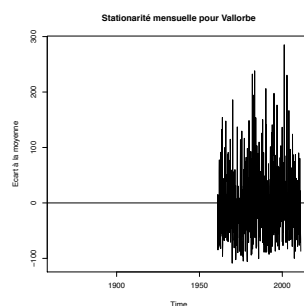
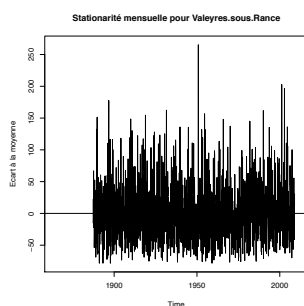
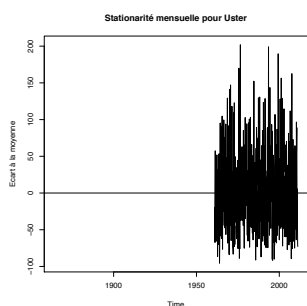
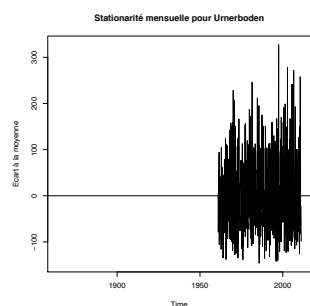
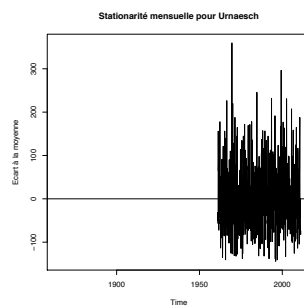
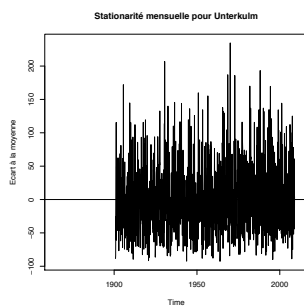
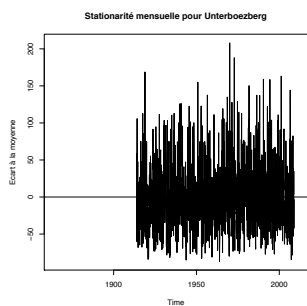
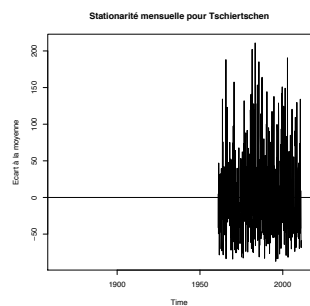




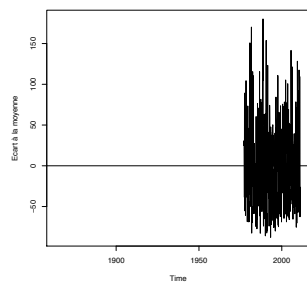




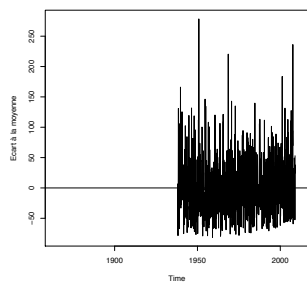




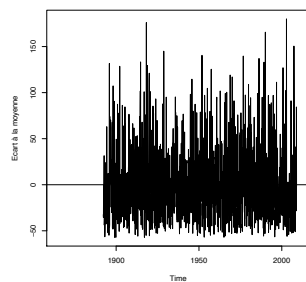
Stationarité mensuelle pour Winterthur



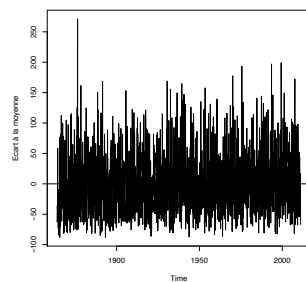
Stationarité mensuelle pour Witzwil



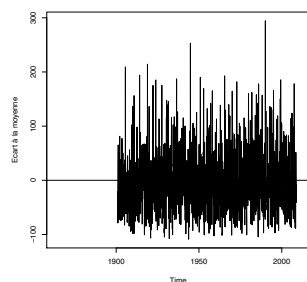
Stationarité mensuelle pour Zermatt



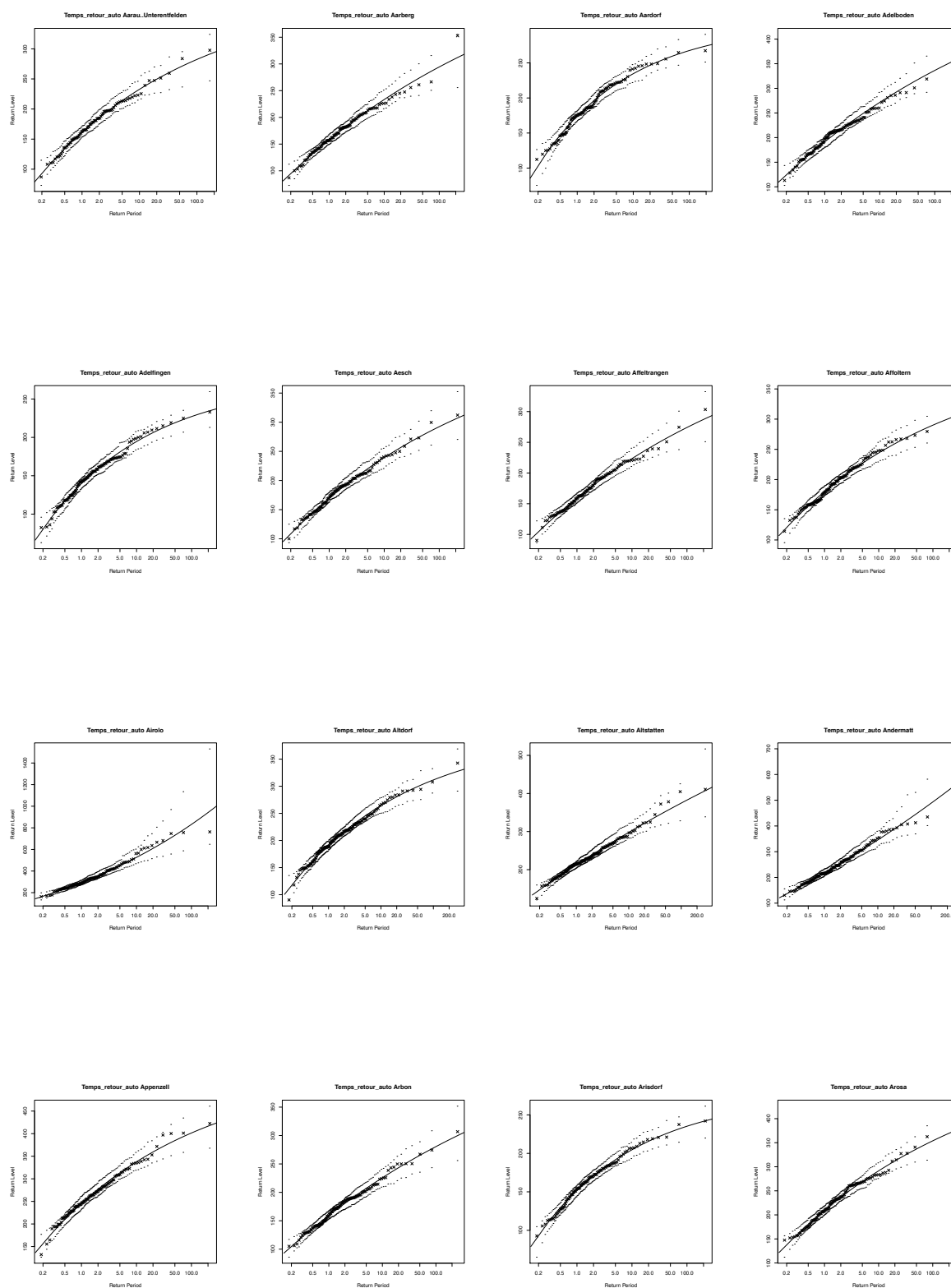
Stationarité mensuelle pour Zurich_P

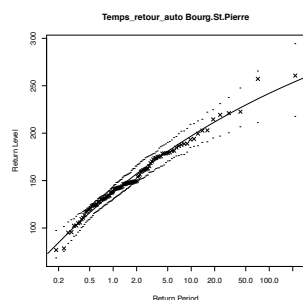
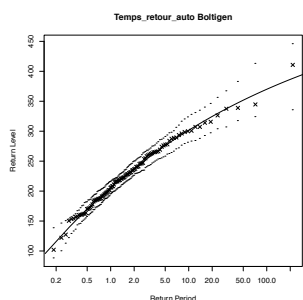
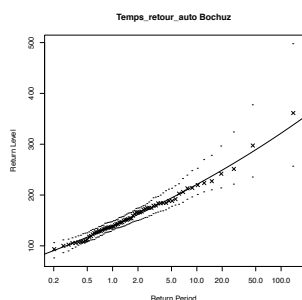
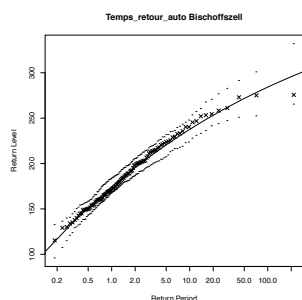
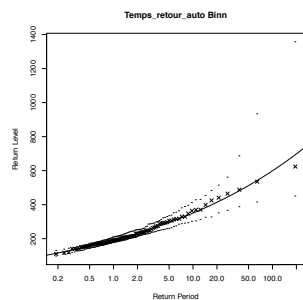
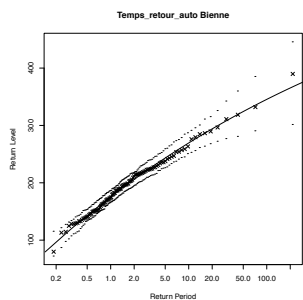
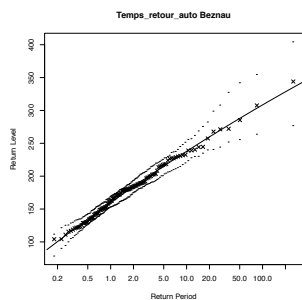
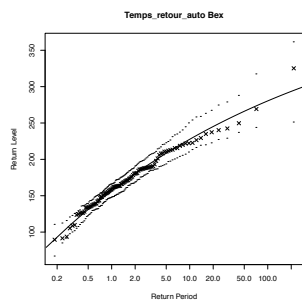
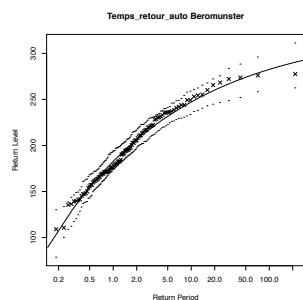
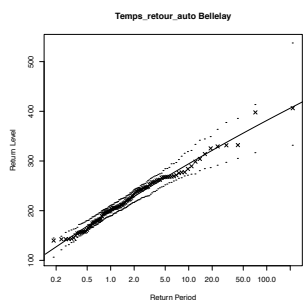
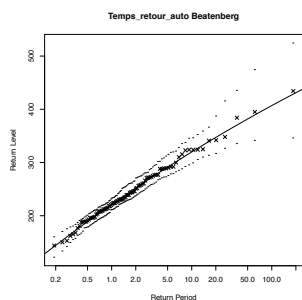
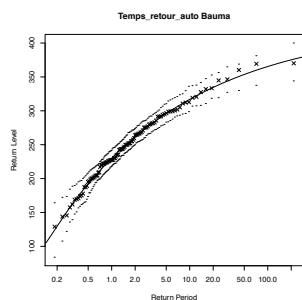
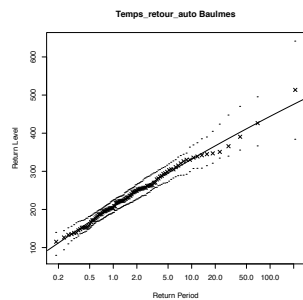
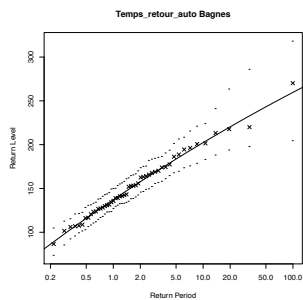
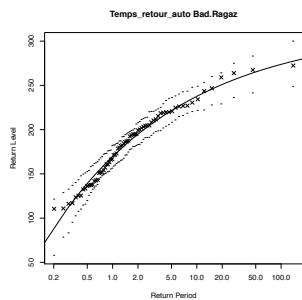
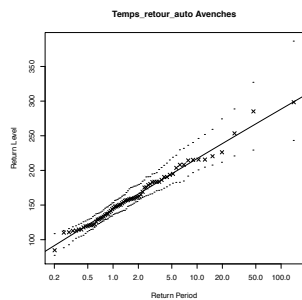


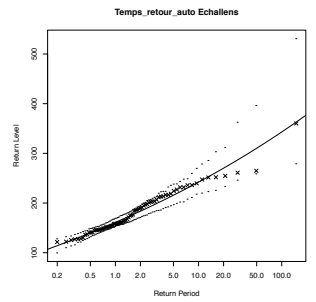
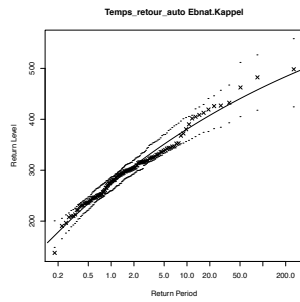
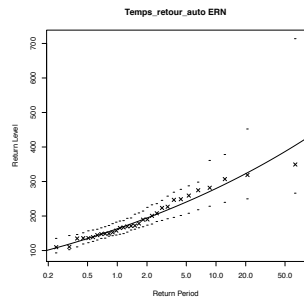
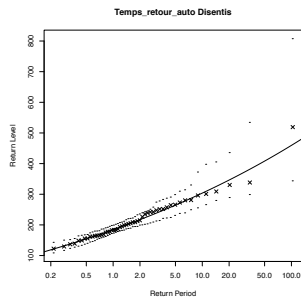
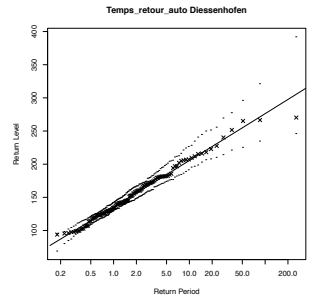
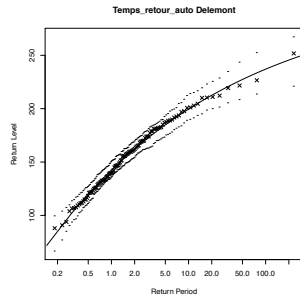
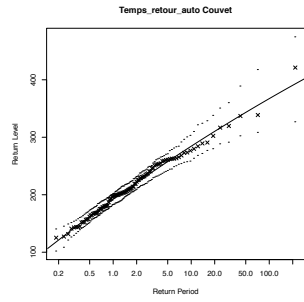
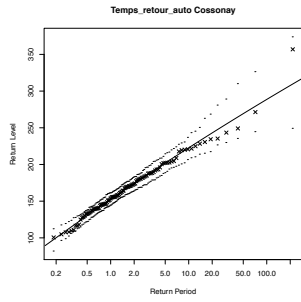
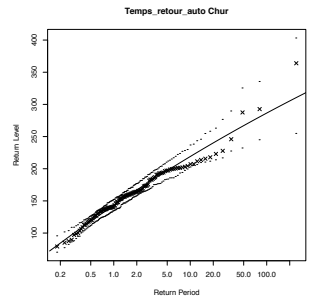
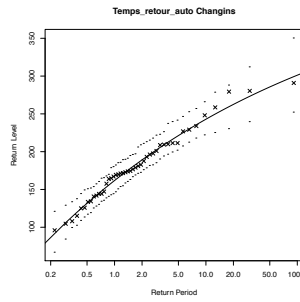
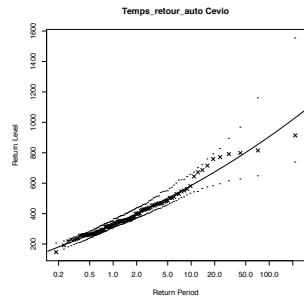
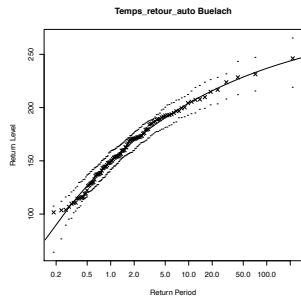
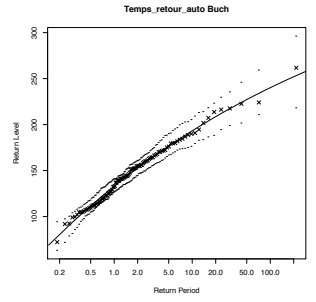
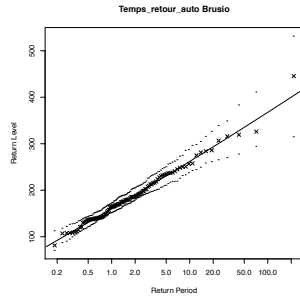
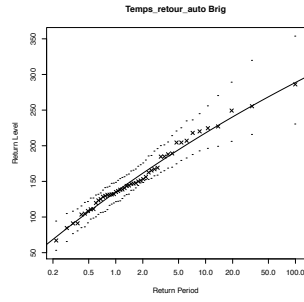
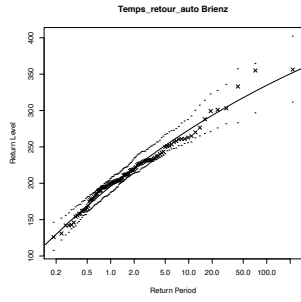
Stationarité mensuelle pour Zweisimmen

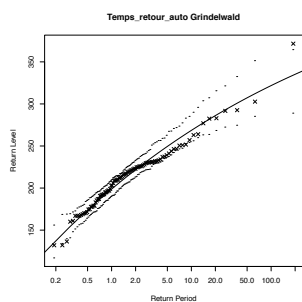
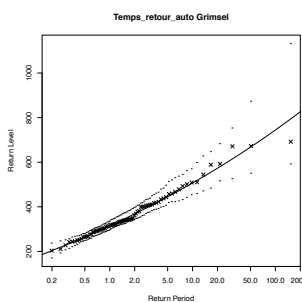
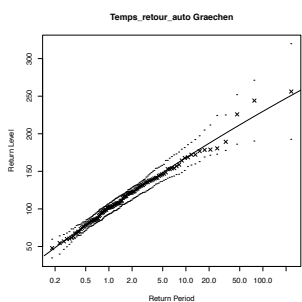
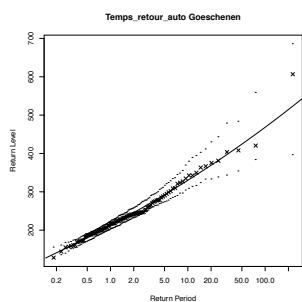
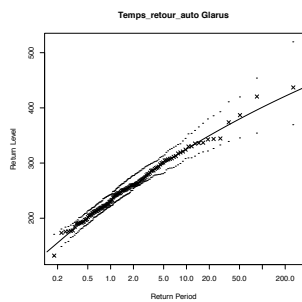
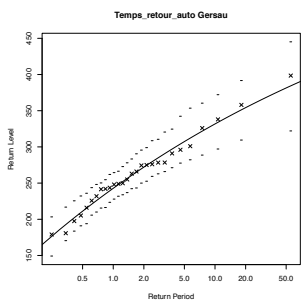
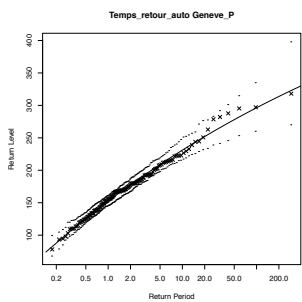
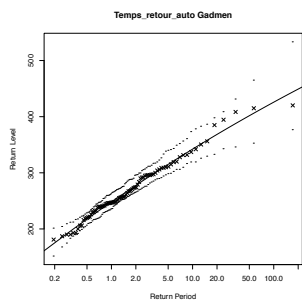
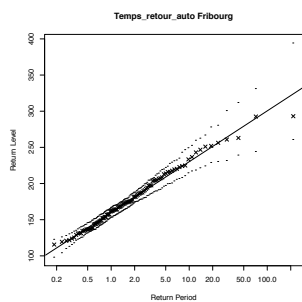
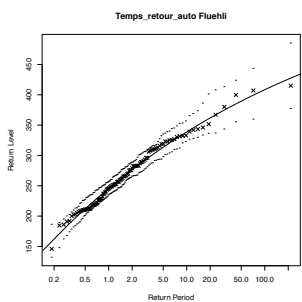
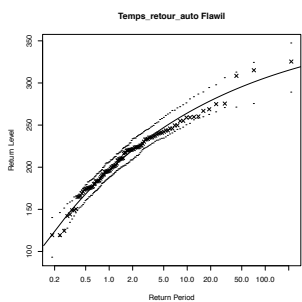
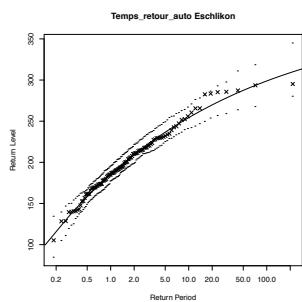
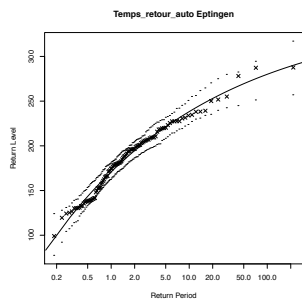
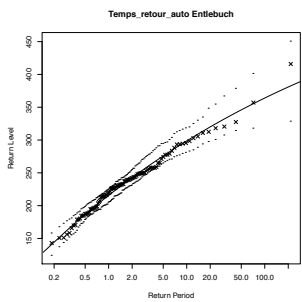
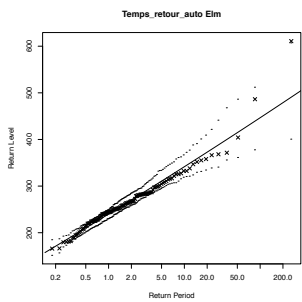
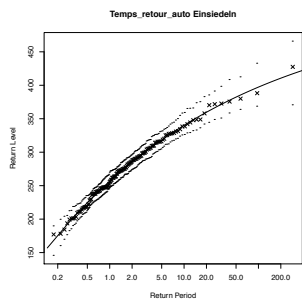


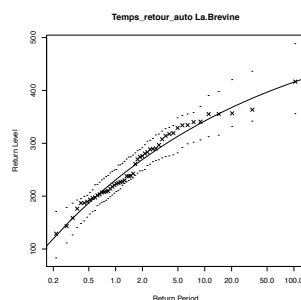
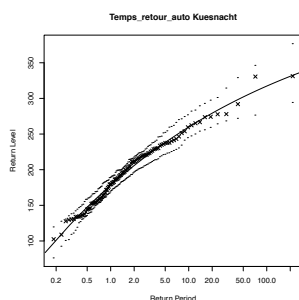
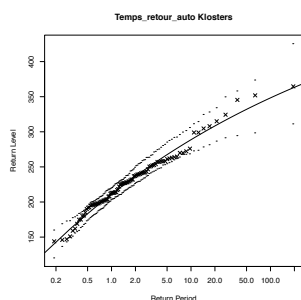
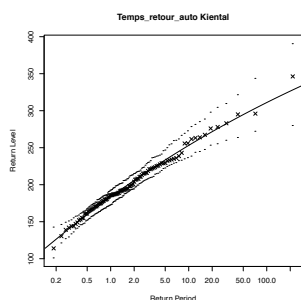
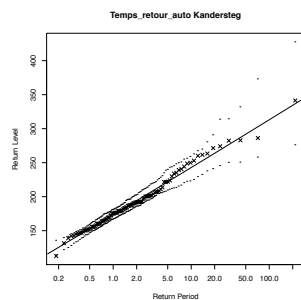
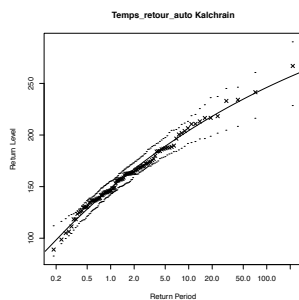
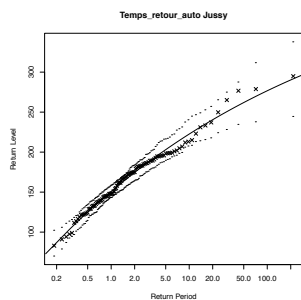
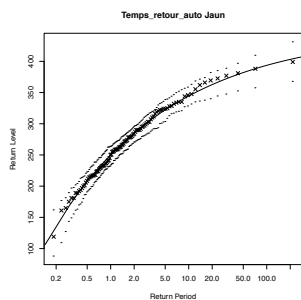
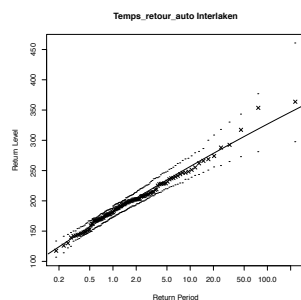
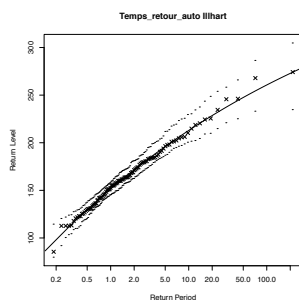
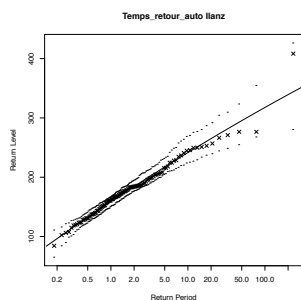
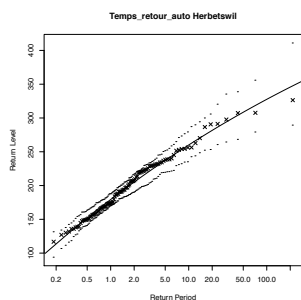
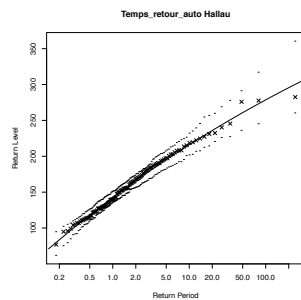
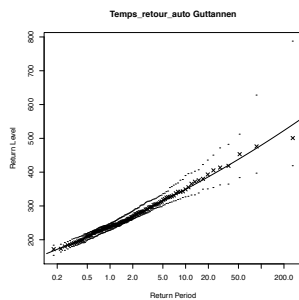
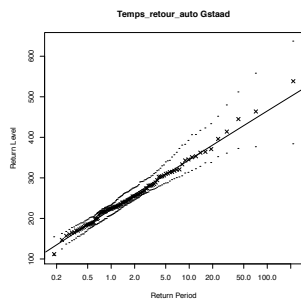
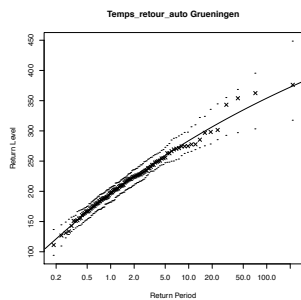
C.2 Graphe de niveau retour des stations suisses

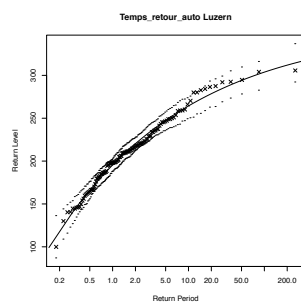
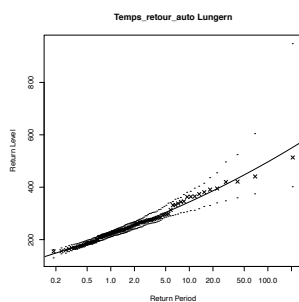
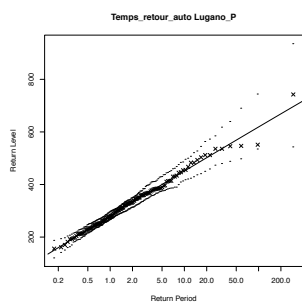
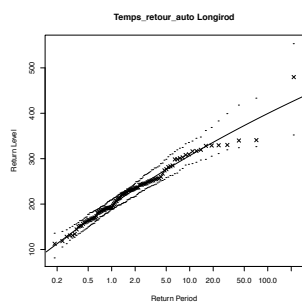
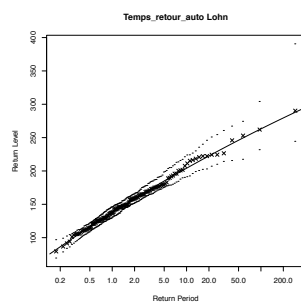
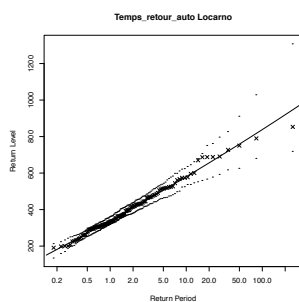
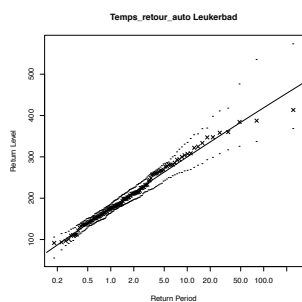
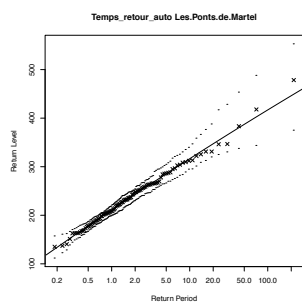
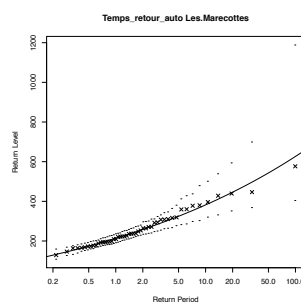
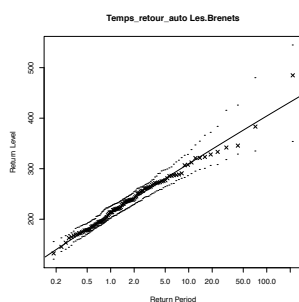
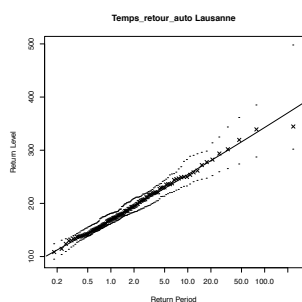
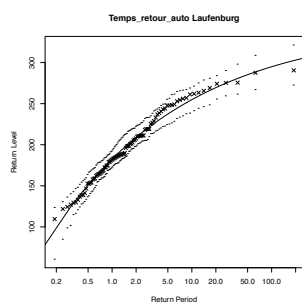
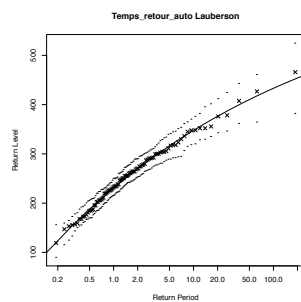
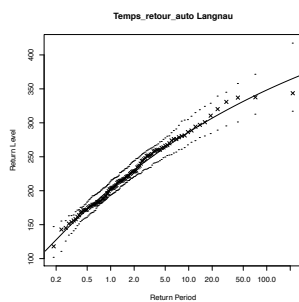
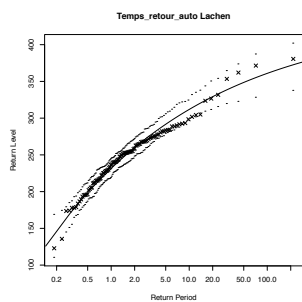
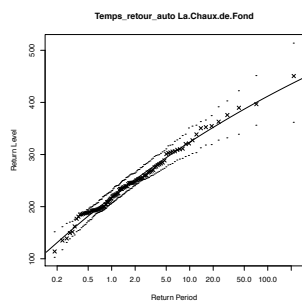


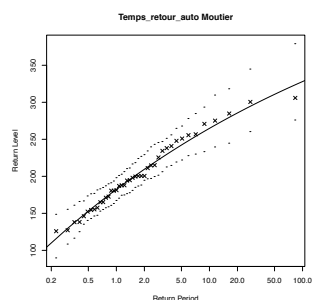
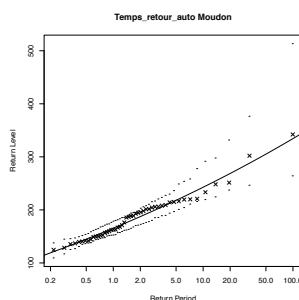
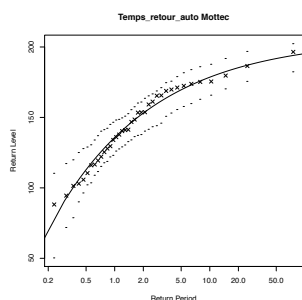
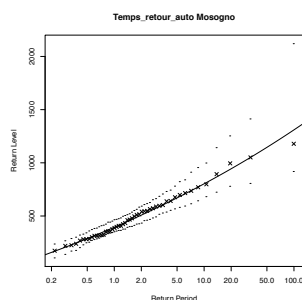
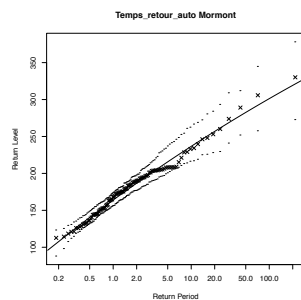
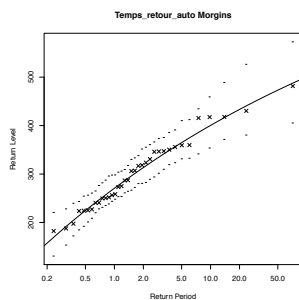
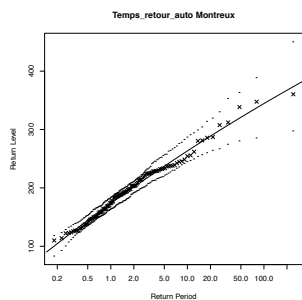
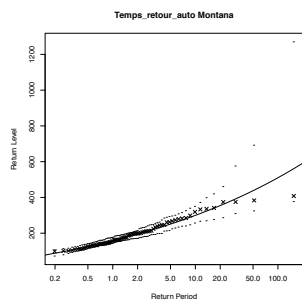
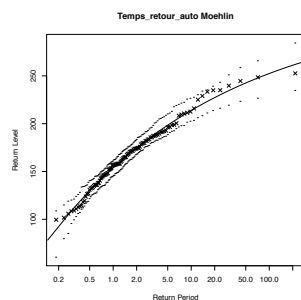
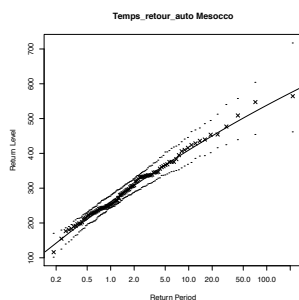
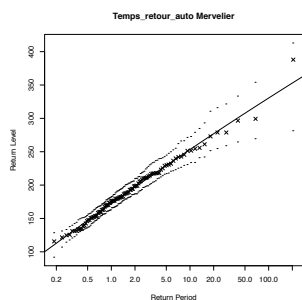
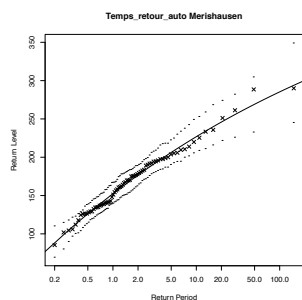
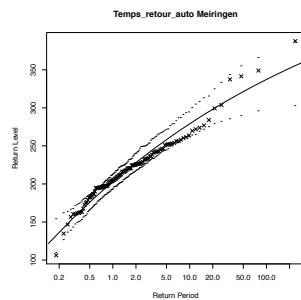
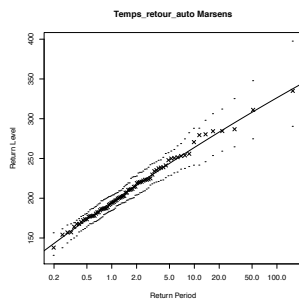
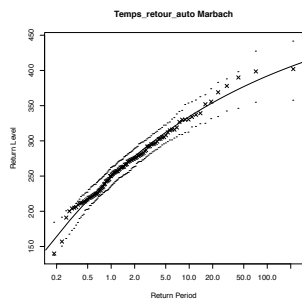
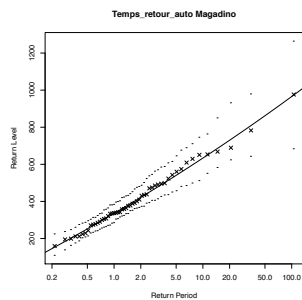


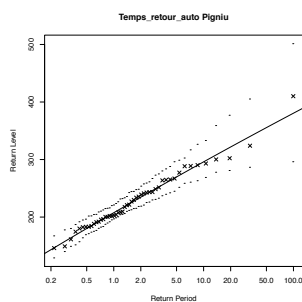
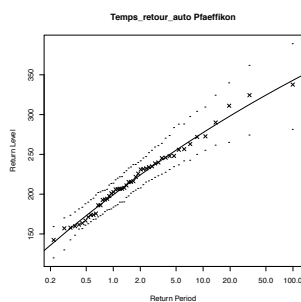
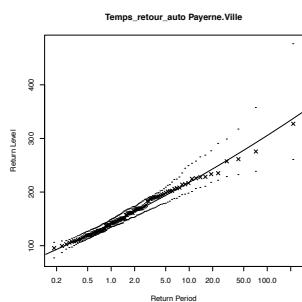
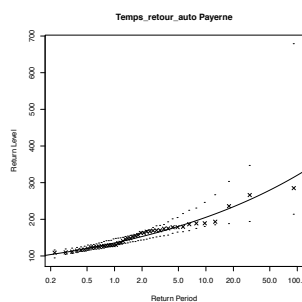
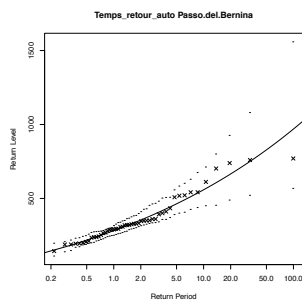
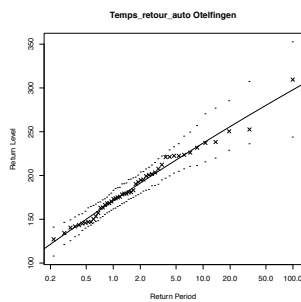
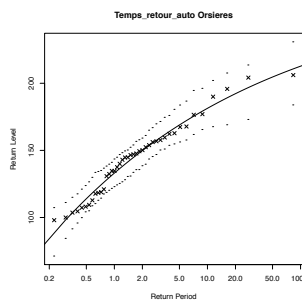
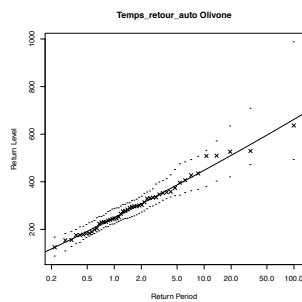
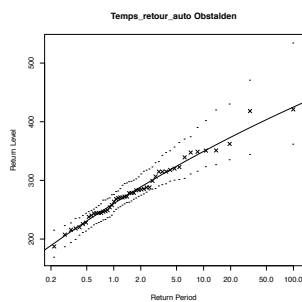
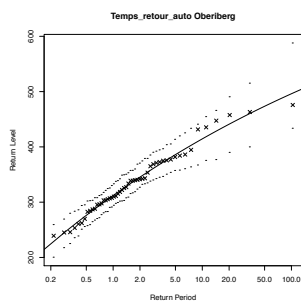
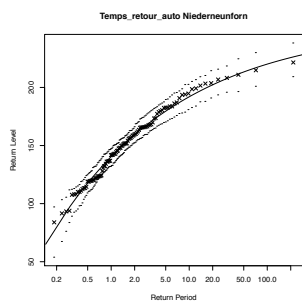
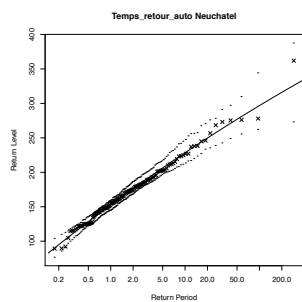
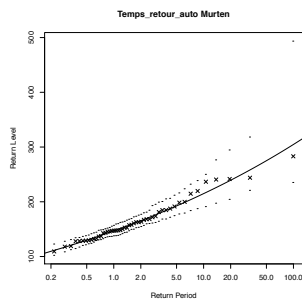
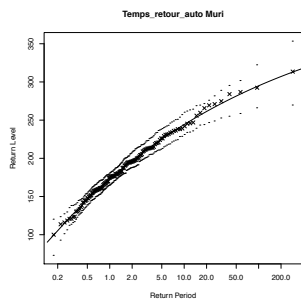
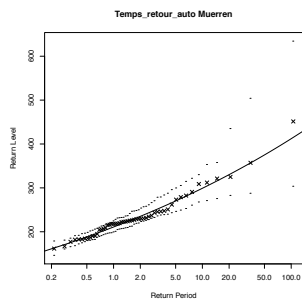
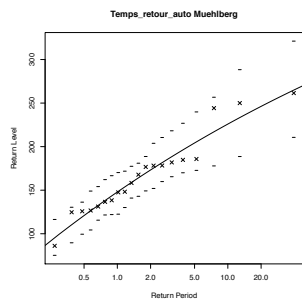


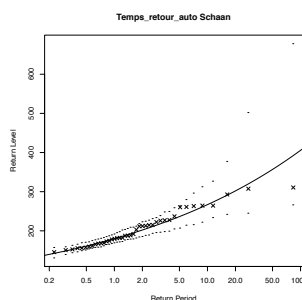
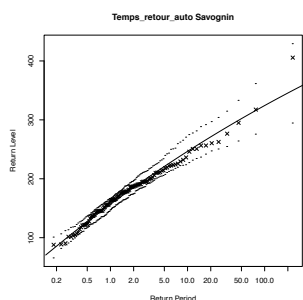
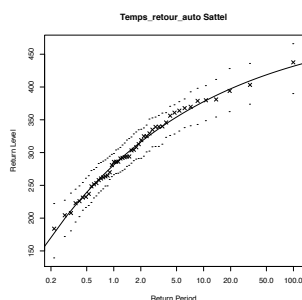
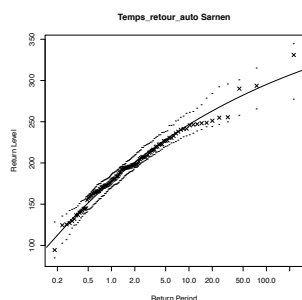
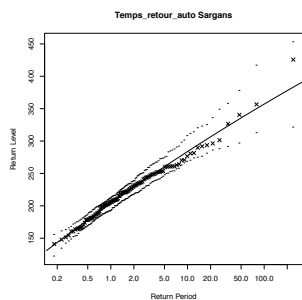
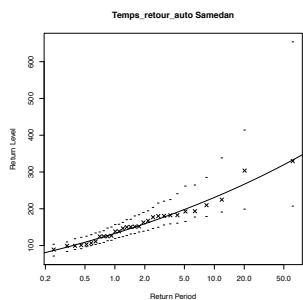
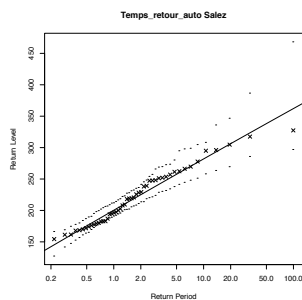
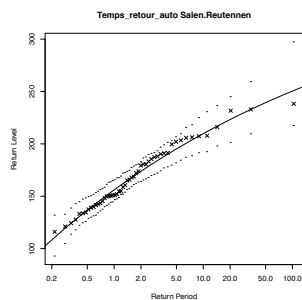
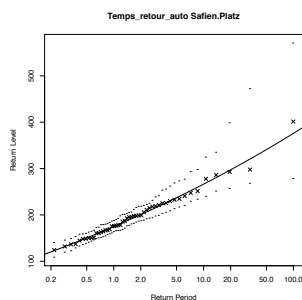
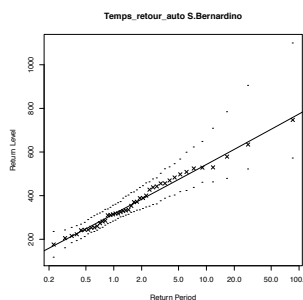
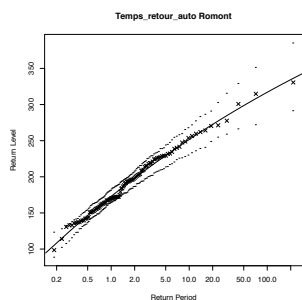
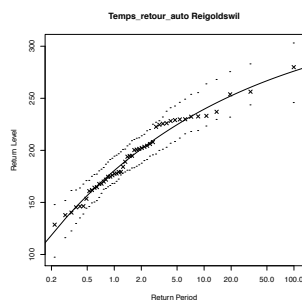
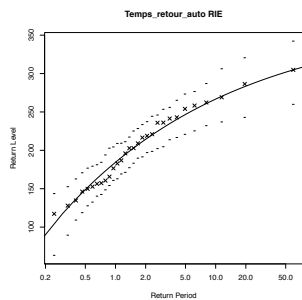
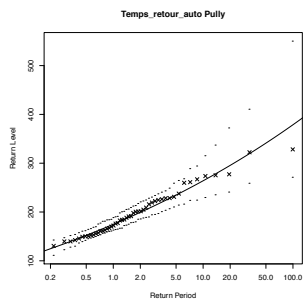
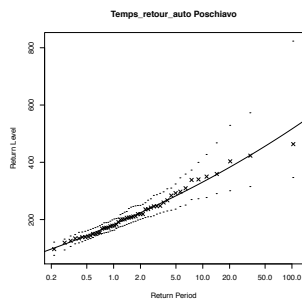
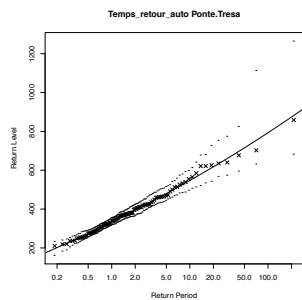


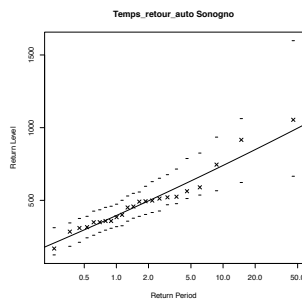
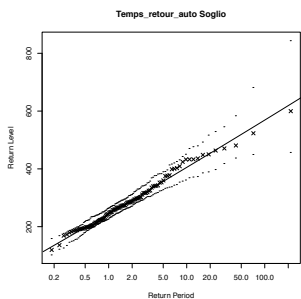
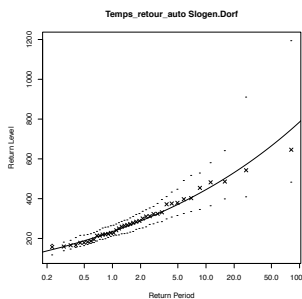
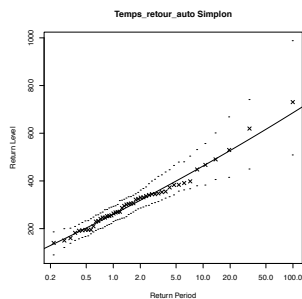
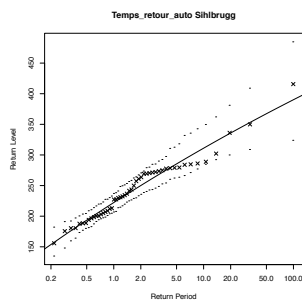
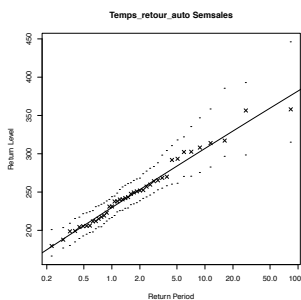
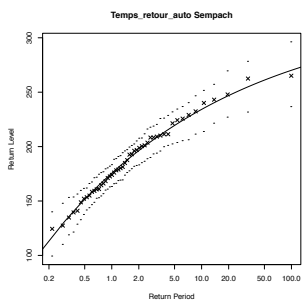
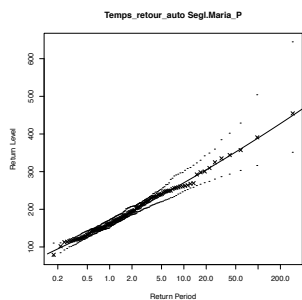
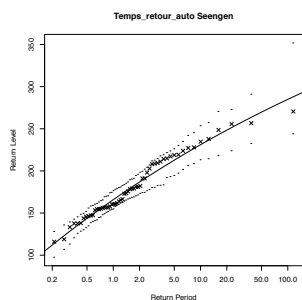
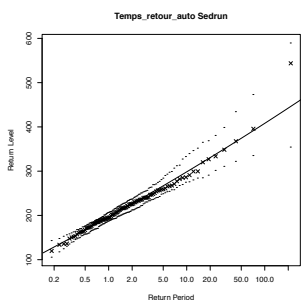
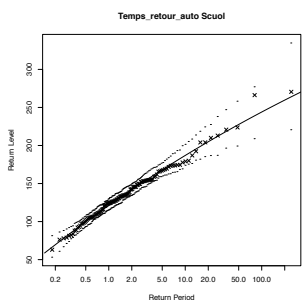
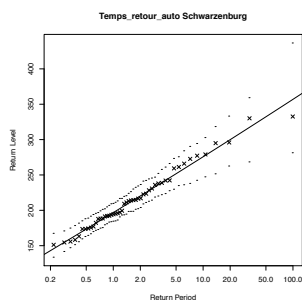
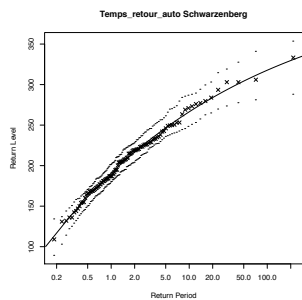
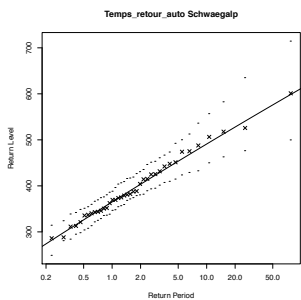
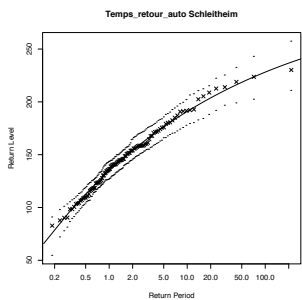
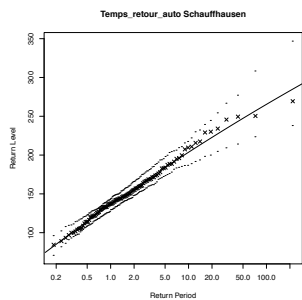


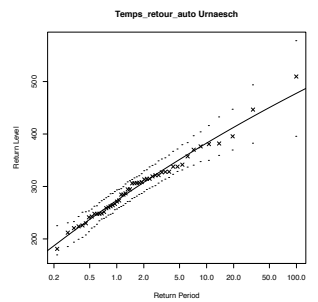
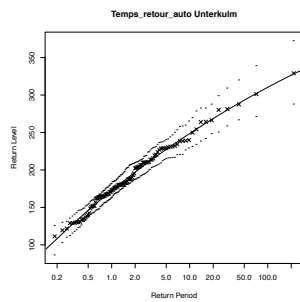
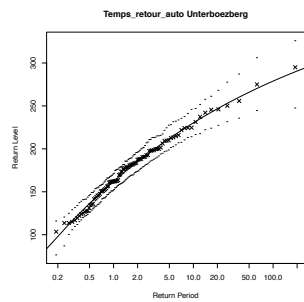
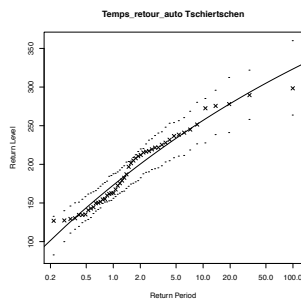
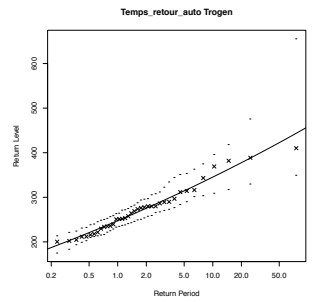
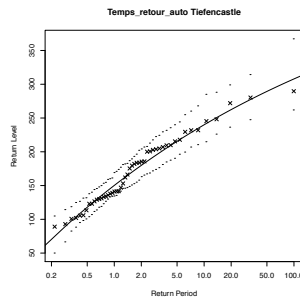
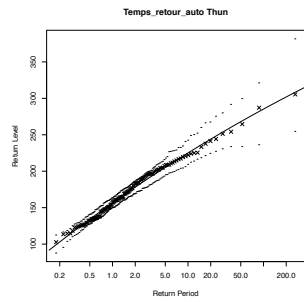
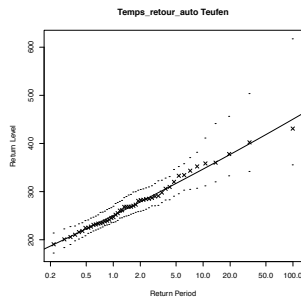
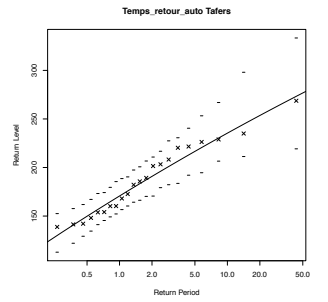
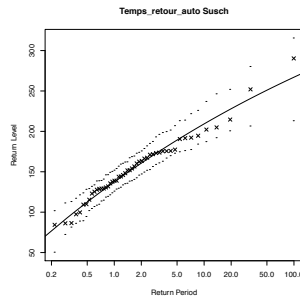
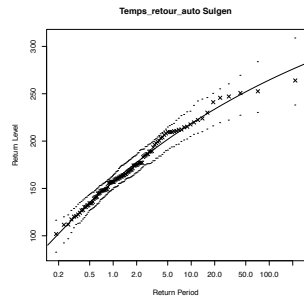
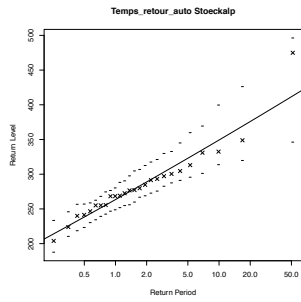
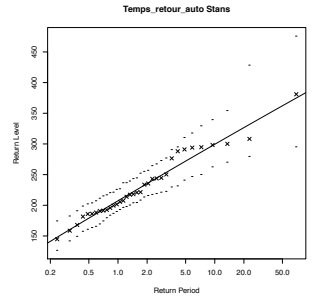
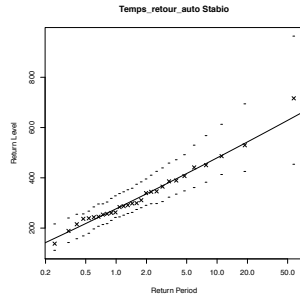
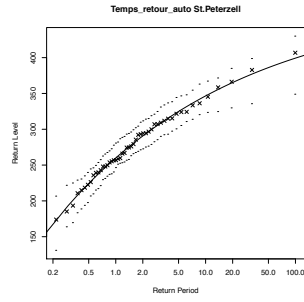
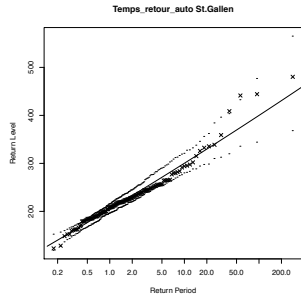


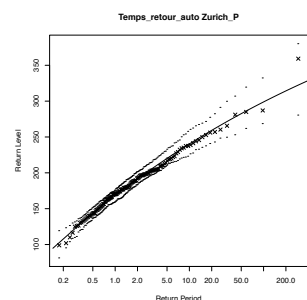
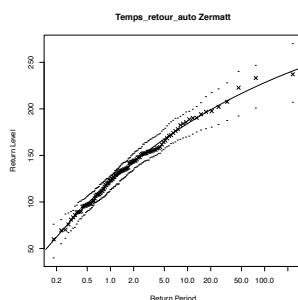
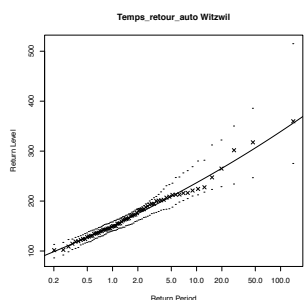
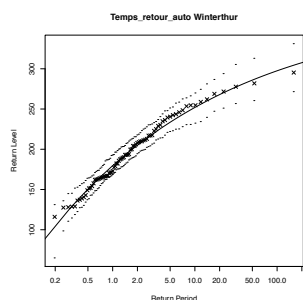
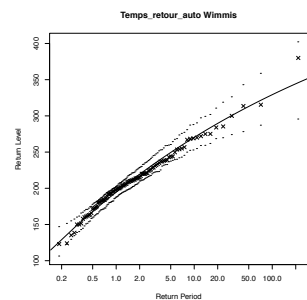
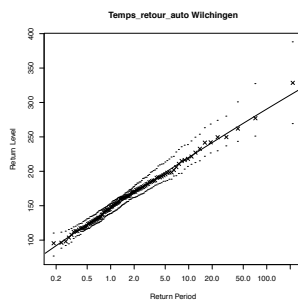
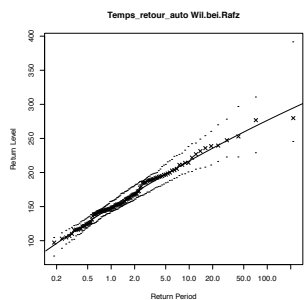
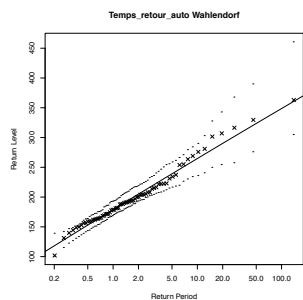
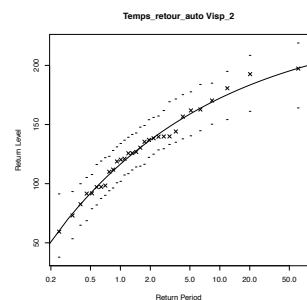
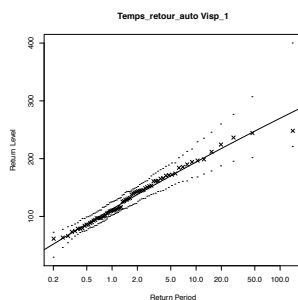
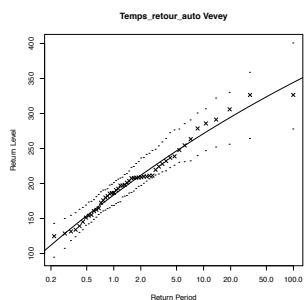
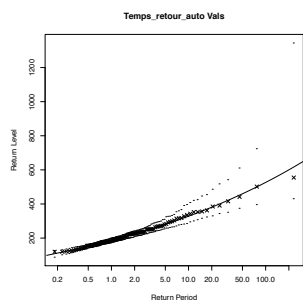
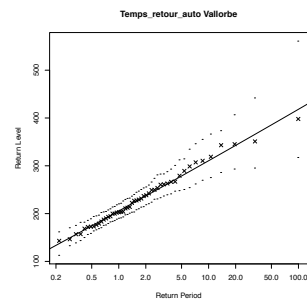
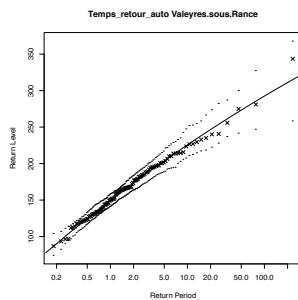
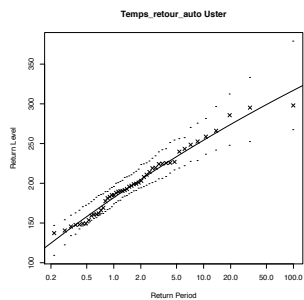
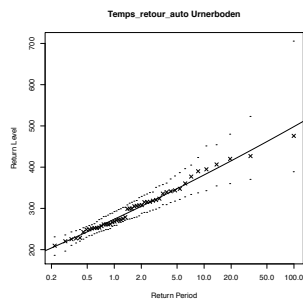


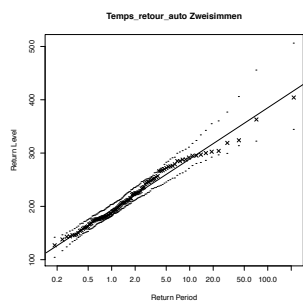




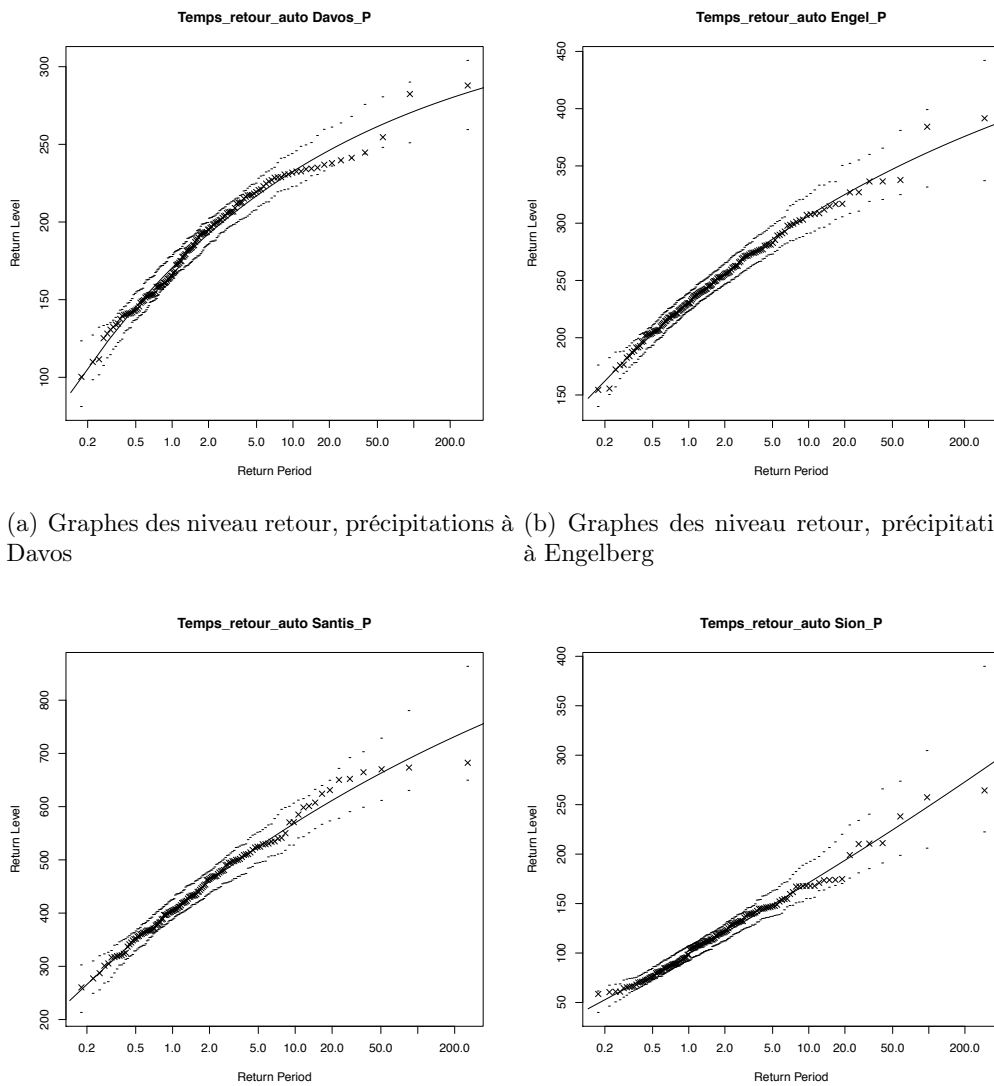








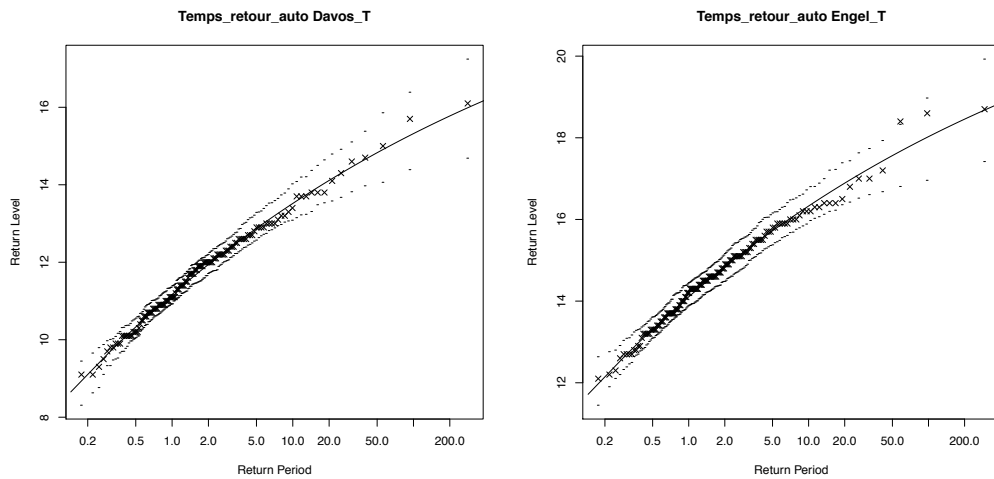
C.3 Graphe de niveau retour des quatre stations



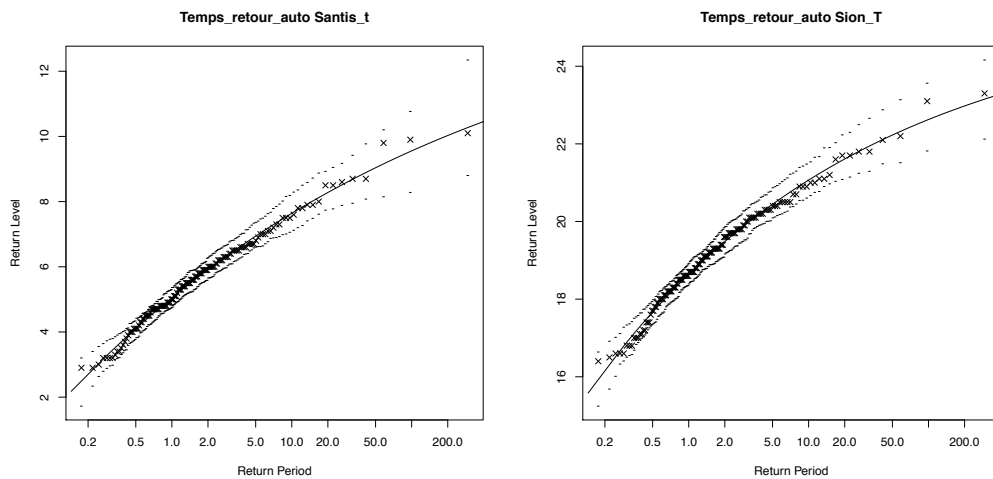
(a) Graphes des niveau retour, précipitations à Davos (b) Graphes des niveau retour, précipitations à Engelberg

(c) Graphes des niveau retour, précipitations au Sântis (d) Graphes des niveau retour, précipitations à Sion

FIGURE 77 – Graphes de niveau retour des quatres stations pour les précipitations



(a) Graphes des niveau retour, température à Davos (b) Graphes des niveau retour, température à Engelberg



(c) Graphes des niveau retour, température au Sântis (d) Graphes des niveau retour, température à Sion

FIGURE 78 – Graphes de niveau retour des quatres stations pour les température

C.4 Codes R

Les codes se trouvent sur le CD en annexes.