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**Forsmark site investigation
Hydro monitoring program
Report for April 2007–April 2008**

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June 2008

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This report concerns a study which was conducted for SKB. The conclusions and viewpoints presented in the report are those of the authors and do not necessarily coincide with those of the client.

Data in SKB's database can be changed for different reasons. Minor changes in SKB's database will not necessarily result in a revised report. Data revisions may also be presented as supplements, available at www.skb.se.

A pdf version of this document can be downloaded from www.skb.se.

Abstract

This document reports data obtained within the hydro monitoring program, which is one of the activities performed within the site investigation at Forsmark. The objective of the groundwater monitoring is to support the hydrogeological characterization of the area and to document the groundwater conditions before a possible excavation.

Data presented in this report are collected during the period of April 2007 until April 2008 and include groundwater levels in surface boreholes and groundwater pressure in boreholes situated in the SFR-tunnel. Meteorological and hydrological data and some service parameters, which have been collected within this activity as well, are presented elsewhere.

The data collecting system in HMS (Hydro Monitoring System) consists of measurement stations (computers) which communicate with and collect data from a number of dataloggers. The computers are connected to the SKB Ethernet LAN. All data are collected by means of different transducers connected to different types of data loggers: Minitroll, LevelTroll, Mitec and Datataker.

In order to calibrate registrations from the data loggers, manual levelling of all surface borehole sections is made, normally once every month. The logger data are converted to water levels using calibration constants. All collected data are quality checked once every three months. During this work, obviously erroneous data are omitted and calibration constants are corrected so that the monitored data comply with the manual levelling. At these occasions the status of the equipment is also checked and service might be initiated.

Diagrams of groundwater levels and groundwater pressure for the period of April 2007–April 2008 (one data point per section and twenty-four hours) are presented in Appendix 2. The original data are stored in the primary data base Sicada. The data in this data base may then be used for further analysis.

There are no nonconformities with respect to the activity plan or the method description.

Sammanfattning

Denna rapport redovisar data erhållna inom programmet för grundvattenmonitoring vilket är en av aktiviteterna inom platsundersökningen i Forsmark. Syftet med grund-vattenmonitoringen är att stödja den hydrogeologiska karakteriseringen av platsen och att dokumentera grundvattenförhållanden före en eventuell tunneldrivning för ett djupförvar.

Data presenterade i rapporten är insamlade under perioden april 2007 till och med april 2008 och består av grundvattennivå i ytborrhål samt grundvattentryck i borrhål belägna i SFR-tunneln. Inom ramen för platsundersökningarna insamlas även meteorologiska och ythydrologiska data, vilka dock presenteras i andra rapporter.

Datainsamlingssystemet i HMS (Hydro Monitoring System) består av mätstationer (datorer) vilka kommunicerar med och samlar in data från ett antal dataloggrar. Datorerna är förbundna med SKB:s nätverk. Alla data samlas in med hjälp av givare förbundna med olika typer av dataloggrar: Minitroll, LevelTroll, Mitec och Datataker.

För att kunna kalibrera registreringarna från dataloggrarna utförs, vanligtvis en gång i månaden, manuell nivåregistrering (lodning) i alla sektioner i ytborrhålen. Loggerdata omvandlas till vattennivåer genom applicering av kalibreringskonstanter. Alla insamlade data kvalitetskontrolleras en gång i kvartalet. Under detta arbete tas uppenbart felaktiga data bort och kalibreringskonstanterna korrigeras så att automatiskt registrerade data överensstämmer med manuella nivåregistreringar. Vid dessa tillfällen kontrolleras utrustningens status och service kan initieras.

Diagram över grundvattennivåer och grundvattentryck för perioden april 2007–april 2008 (en datapunkt per sektion och 24 timmar) visas i Appendix 2. Originaldata lagras i primärdatan Sica. Data från denna databas kan användas för vidare analyser.

Aktiviteten har utförts i överensstämmelse med aktivitetsplanen och metodbeskrivningen.

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1 Introduction

This document reports data collected within the hydro monitoring program, which is one of the activities performed within the site investigation at Forsmark. The work was carried out in accordance with activity plans SKB AP PF 400-07-021 and SKB AP PF 400-07-051. Controlling documents for this activity are listed in Table 1-1. The activity plans and the method description are SKB's internal controlling documents. The site investigation internal reports, Table 1-2, present the results from the quality check performed once every three months, see Section 4.4.

Data presented in this report were collected during April 2007–April 2008. Groundwater levels from boreholes and some surface water levels are included in the data set.

The HMS (Hydro Monitoring System) is used to collect and store all data.

The original data are stored in the primary database Sicada and are traceable by the Activity Plan number.

Table 1-1. Controlling documents.

Activity Plans	Number	Version
Platsundersökning Forsmark Moniteringsprogram för hydrogeologi, hydrologi och meteorologi 2007	AP PF 400-07-021	1.0
Platsundersökning Forsmark Hydrologisk och hydrogeologisk monitorering 2008	AP PF 400-07-051	1.0
Method Descriptions	Number	Version
Metodbeskrivning för grundvattenmonitoring vid SKB:s platsundersökningar	SKB MD 360.002	1.0

Site investigation Internal Reports (in Swedish)	Number
Platsundersökning i Forsmark Kvalitetskontroll av yt- och grundvattenmonitoring Period januari–april 2007	PIR-07-23
Platsundersökning i Forsmark Kvalitetskontroll av yt- och grundvattenmonitoring Period april–augusti 2007	PIR-07-39
Platsundersökning i Forsmark Kvalitetskontroll av yt- och grundvattenmonitoring Period augusti–november 2007	PIR-07-47
Platsundersökning i Forsmark Kvalitetskontroll av yt- och grundvattenmonitoring Period november 2007–februari 2008	PIR-08-20
Platsprojekt Forsmark/SFR3 Kvalitetskontroll av yt- och grundvattenmonitoring Period februari–maj 2008	PIR-08-47

2 Objective and scope

The objectives of the part of the hydro monitoring program presented in this report are to determine baseline conditions of the natural variations of the groundwater levels prior to the potential excavation for a nuclear waste repository and to support the hydro-geological site characterisation.

Data collected within this activity are:

- groundwater level in surface boreholes (including core- and percussion drilled boreholes in solid rock and monitoring wells in soil),
- groundwater pressure in boreholes situated in the SFR-tunnel,
- water level, water temperature and electrical conductivity of surface waters measured in flumes at runoff stations, although presented elsewhere,
- meteorological data from SMHI (Swedish Meteorological and Hydrological Institute), although presented elsewhere.

There are also some parameters that are used for monitoring the hardware performance and the environment in which the hardware is used. However, these parameters are not reported herein.

The following numbers of boreholes, monitoring wells in soil and surface water level gauges were included in the Forsmark monitoring system at the end of April 2008:

- 25 core-drilled surface boreholes,
- 37 percussion-drilled surface boreholes,
- 51 monitoring wells in soil,
- 6 surface water level gauges,
- 13 core-drilled boreholes in the SFR-tunnel.

The locations of the boreholes are shown in Figure 2-1. Coordinates of all boreholes in the reference system RT90 2.5 gon V 0:–15 and elevation at top of casing (TOC) are provided in Sicada.



Figure 2-1. Overview of the Forsmark site investigation area with boreholes of different categories and surface water level gauges.

3 Equipment

3.1 Straddle packer system with surface accessory equipment

A drawing of the surface based equipment used for percussion- and core-drilled boreholes is shown in Figure 3-1.

Drawings of the straddle-packer equipment for permanent instrumentation in core- and percussion-drilled boreholes are presented in Figure 3-2.

In Figure 3-3 the instrumentation in monitoring wells in soil is shown. In open percussion and core boreholes, as in the monitoring wells in soil, a transducer or data logger is submerged in the groundwater without any other equipment.

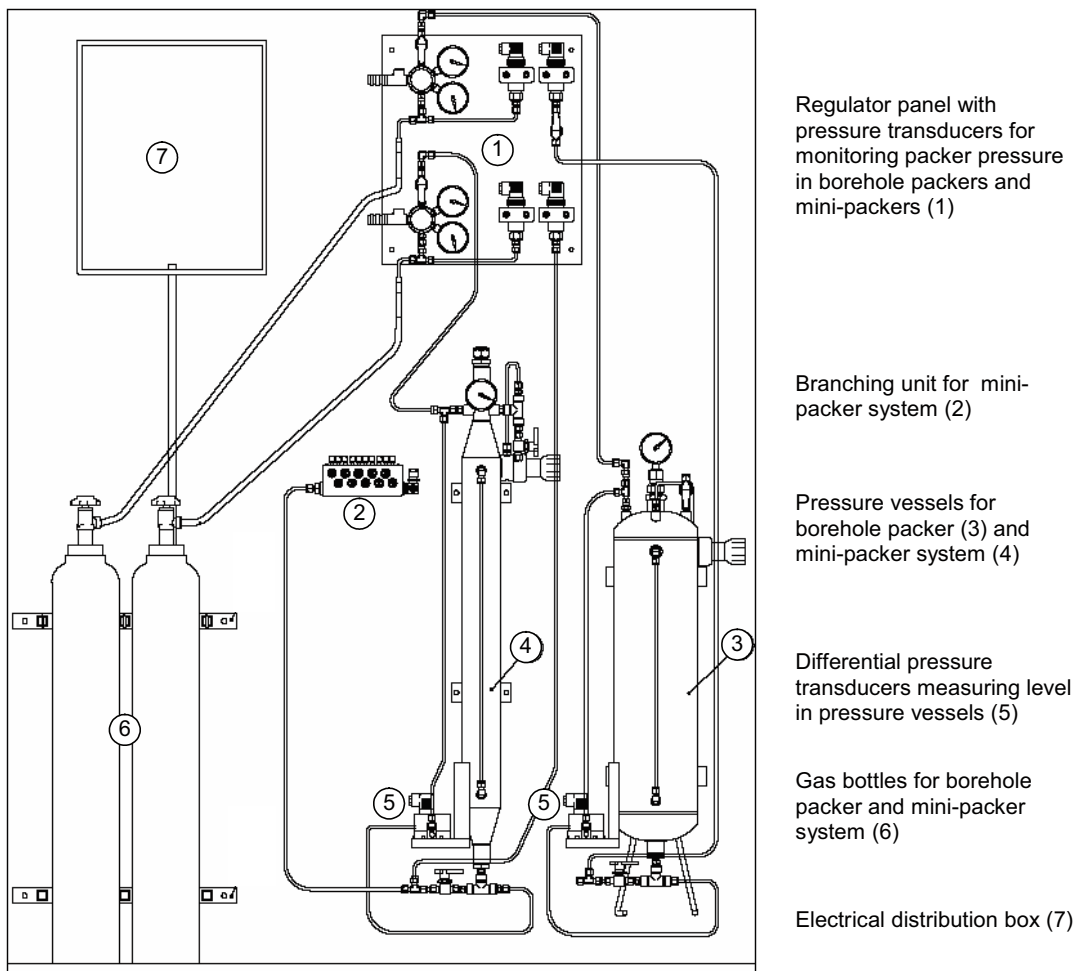


Figure 3-1. Example of ground surface equipment for percussion- and core-drilled boreholes.

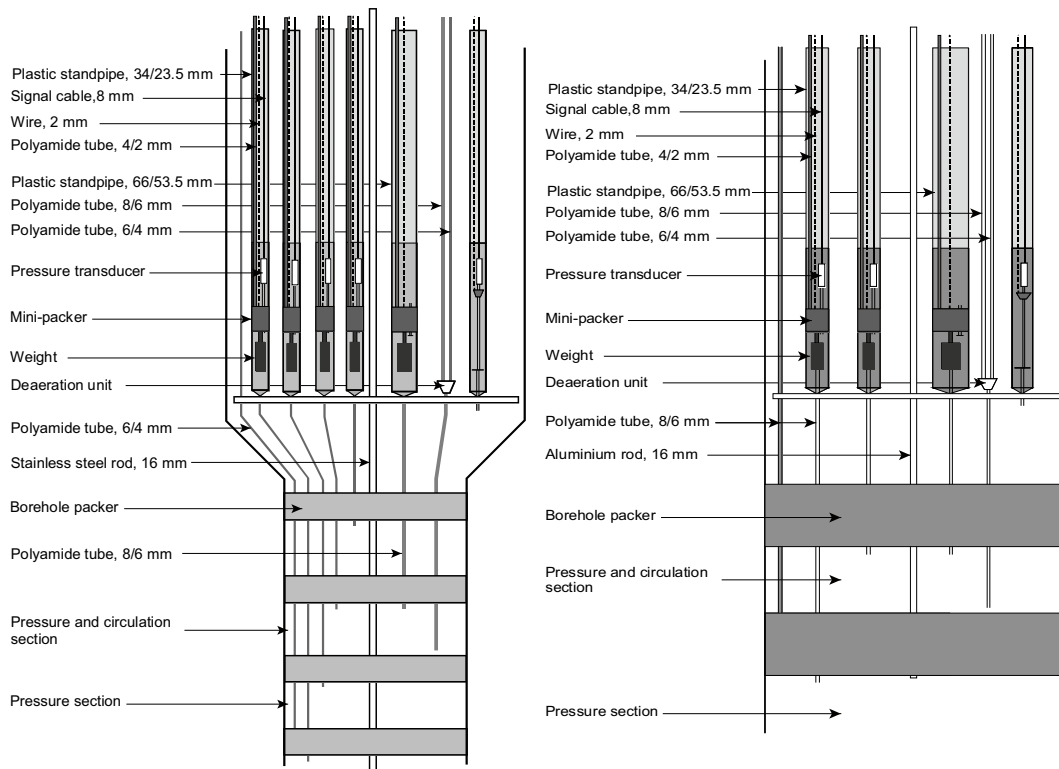


Figure 3-2. Example of permanent instrumentation in core-drilled boreholes (left) and percussion-drilled boreholes (right) supplied with circulation sections, i.e. a borehole section which enables circulation of the groundwater enclosed in the section as well as water sampling.

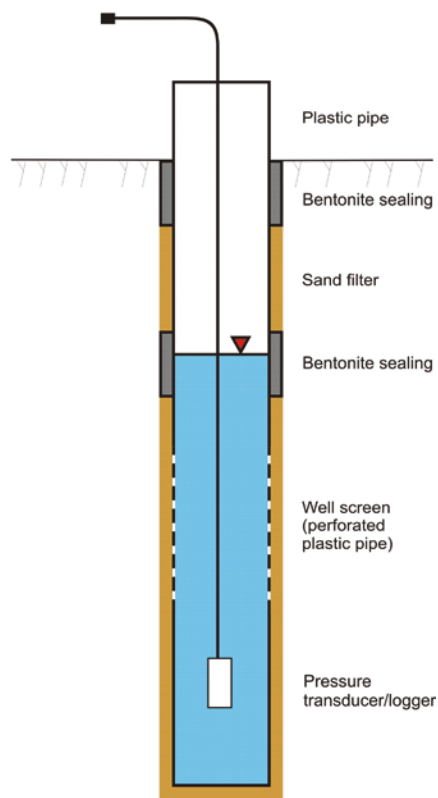


Figure 3-3. Explanatory sketch of instrumentation in monitoring wells in soil.

3.2 Data collection system

The data collection system, which is part of the Hydro Monitoring System (HMS), consists of measurement stations (computers), which collect data from a number of data sources, see Figure 3-4. The computers are connected to the SKB Ethernet LAN (Local Area Network).

All data are collected by means of pressure transducers connected to different types of data loggers or by manual levelling. The following data loggers are used:

Minitroll: a single-channel data logger of stand-alone type where the transducer is integrated in the logger. The logger is submerged in the groundwater and has the capacity to store 80,000 data.

Leveltroll: the successor to Minitroll, which is no longer manufactured. It is a logger that in most respects is equal to Minitroll, but has the capacity to store 350,000 data.

Mitec: a data logger connected on-line by means of GSM telephony. A pressure transducer of the type Druck PTX is connected to the logger. Only the transducer is submerged in the groundwater. The logger has eight channels, but during monitoring in boreholes, only one channel is used for pressure monitoring and one for monitoring of the battery voltage.

Datataker: a data logger connected on-line by means of radio or network. The logger has 42 channels and is used only for monitoring in percussion- and core-drilled boreholes.

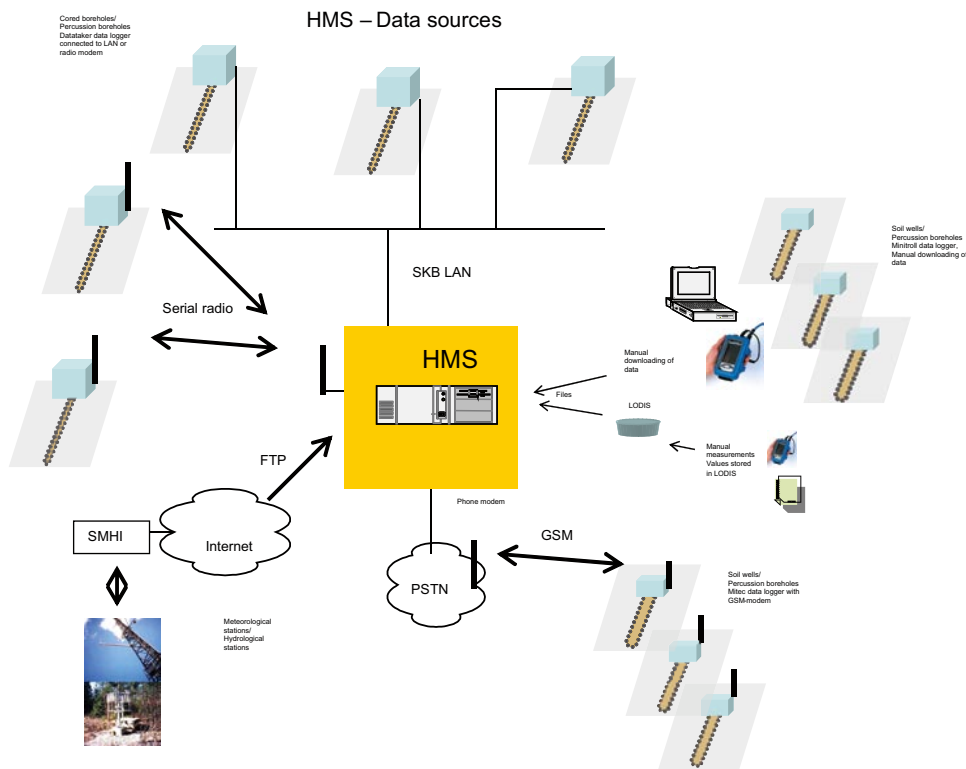


Figure 3-4. HMS data sources.

4 Execution

4.1 General

Data are collected to the measurement system, HMS, as described in Chapter 3.

The on-line system is designed to handle short interruptions in the communication. Data can be stored for at least a couple of hours in the loggers. All data are finally stored in the measurement station. Tape backup is made of all data.

Monitored data that have been quality assured are transferred quarterly to the site characterization database, Sicada.

4.2 Field work

Manual levelling is generally carried out once a month in the surface boreholes. At the same time, the equipment is checked and maintenance is performed.

All data from stand-alone type loggers are manually dumped into a portable PC and then transmitted to the measurement station, normally once every three months.

4.3 Data handling

4.3.1 Calibration method for surface boreholes

Manual levelling of all surface borehole sections is made, normally once every month, in order to calibrate the registrations from the data loggers.

The logger data from the surface boreholes are converted to water levels by means of a linear calibration equation. It is also necessary to subtract the air pressure since all transducers give the absolute pressure. Converted logger data are compared with results from manual levelling. If the two differ, calibration constants are adjusted until an acceptable agreement is obtained.

4.3.2 Calibration method for tunnel boreholes

A pressure reference system is installed in the SFR-tunnel. It consists of two pressure tanks located at two different tunnel depths, generating one high and one low pressure of known magnitude. From these tanks, tubes are connected to each of the four measurement stations in the tunnel. At each station, a number of transducers are mounted on a panel where the tubes from the pressure reference system also are available to enable in situ calibration of the pressure transducers.

During calibration all transducers on the panel are connected to the reference system together with a mobile pressure transducer that is used for very accurate measurements of the high and the low pressure, respectively. From these measurements a linear calibration equation is calculated.

4.3.3 Recording interval

For stand-alone and GSM-connected data loggers, measurements of the groundwater level are normally made with five minutes intervals. For all other data loggers connected on-line, levels are normally measured once every ten minutes.

Measured values are not stored unless they differ from the previously stored value by more than 0.1 m (1 kPa) for percussion- and core-drilled boreholes, and 0.05 m for monitoring wells in soil. In addition to this, a value is stored every two hours.

4.4 Quality assurance

Once every week, an inspection of all collected data is performed. The purpose of this is to verify that all loggers are sending data and that all transducers are functioning.

Quarterly, all data collected are subject to a quality check. During this Q/A, obviously erroneous data are omitted and calibration constants are corrected so that the monitored data comply with the manual levelling data (see Section 4.3.1). At this occasion, the status of the equipment is also checked and service might be initiated.

4.5 Nonconformities

There are no nonconformities with respect to the activity plan or the method description.

5 Results

5.1 General

Original data from the reported activity are stored in the primary database Sicada. Data are traceable in Sicada by the Activity Plan number (AP PF 400-07-021 and AP PF 400-07-051). Only data in databases are accepted for further interpretation and modelling. The data presented in this report are regarded as copies of the original data. Data in the databases may be revised, if needed. However, such revision of the database will not necessarily result in a revision of this report, although the normal procedure is that major data revisions entail a revision of P-reports. Minor data revisions are normally presented as supplements, available at www.skb.se.

5.2 Groundwater levels

Monitored borehole sections are listed in Appendix 1.

Diagrams of groundwater levels and groundwater pressure are presented in Appendix 2. All levels in the diagrams are given as metres above sea level in the national elevation system (RHB70). Data from previously reported periods are to be found in earlier reports /1/, /2/, /3/ or /4/.

Daily values are presented for each section in the diagrams. The data point shown is the first stored data point after midnight. When registrations are missing, manually levelled data, if available, are inserted.

Boreholes included in the monitoring system in Forsmark and SFR:

- Core-drilled boreholes (25): KFM01A–D, KFM02A–B, KFM03A–B, KFM04A, KFM05A, KFM06A–C, KFM07A–C, KFM08A–D, KFM09A–B, KFM10A, KFM11A, KFM12A
- Percussion-drilled boreholes (37): HFM01–HFM05, HFM07–HFM38
- Monitoring wells in soil (51): SFM0001, SFM0003–SFM0006, SFM0008, SFM0010–SFM0015, SFM0017, SFM0019, SFM0021–SFM0023, SFM0025–SFM0028, SFM0030, SFM0033, SFM0034, SFM0036, SFM0049, SFM0057, SFM0058, SFM0061, SFM0062, SFM0067–SFM0073, SFM0075, SFM0077–SFM0081, SFM0084, SFM0087, SFM0091, SFM0095, SFM0104–SFM0107
- Surface water level gauges (6) SFM0038 (=PFM010038)–SFM0042, SFM0064
- SFR boreholes (13): KFR01–KFR05, KFR7A–B, KFR08, KFR09, KFR13, KFR19, KFR55, KFR56

5.2.1 General comments

Results from monitoring in boreholes are presented in diagrams. Level data and pressure data from all sections in each borehole are presented for the period of April 2007 until April 2008.

The symbols used in the diagrams are:

The lowermost section =	Section 1	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○
	Section 2	+ + + + + + + + + +
	Section 3	× × × × × × × × × ×
	Section 4	□ □ □ □ □ □ □ □ □ □
	Section 5	◇ ◇ ◇ ◇ ◇ ◇ ◇ ◇ ◇ ◇
	Section 6	△ △ △ △ △ △ △ △ △ △
	Section 7	< < < < < < < < < <
	Section 8	▽ ▽ ▽ ▽ ▽ ▽ ▽ ▽ ▽ ▽
	Section 9	▷ ▷ ▷ ▷ ▷ ▷ ▷ ▷ ▷ ▷
	Section 10	✕ ✕ ✕ ✕ ✕ ✕ ✕ ✕ ✕ ✕

Sometimes it is difficult to differentiate registrations from individual sections in the diagrams. However, since the main purpose of this report is to present an overall view of the long-term changes, it was not found advantageous to show more detailed diagrams from individual sections. Detailed diagrams during test periods are presented in reports from the different tests.

Due to failures in the mechanical or electronic equipment, data are sometimes missing for longer or shorter periods. This is not commented on below. For more comments on the diagrams, see Site investigation Internal Reports, Table 1-2.

Remarks are given when the registration for some reason has a deviating appearance. When registrations are missing, manually levelled data, if available, are inserted.

In many boreholes, the groundwater level shows large and rapid variations. This is often due to activities such as pumping, water sampling, tracer tests etc.

Packers may deflate due to leakage, which can be difficult to discover. If a section in a borehole suddenly shows a pressure that is close to the pressure in a neighbouring section, the reason might be deflated packers.

5.2.2 Comments on some of the diagrams

In most of the percussion- and core-drilled surface boreholes, more or less pronounced draw-downs in the groundwater level can be seen during summer and autumn 2007. This is due to the pumping performed in HFM14 described further below.

The groundwater in many of the monitoring wells in soil has been reported to be frozen in December 2007 through March 2008. Obviously erroneous data due to freezing have been eliminated.

HFM14: Pumping (350 L/min) was performed in the borehole from the end of June to the beginning of October 2007 and also from the end of November to the middle of December 2007.

HFM33: Pumping (260 L/min) was performed in the borehole from the beginning to the middle of November 2007.

HFM34: After installation of packers in the borehole in July 2006, section 1 has always been reported to be dry and all data have been omitted. Measurement in section 1 was terminated in May 2007.

KFM01A, KFM06A and KFM08A: The anomalous behaviour for section one in KFM01A and KFM06A and section 3 in KFM08A is caused by low transmissivity and/or poor communication between the standpipe and the section in combination with a relatively large difference between the stand-pipe level and the pressure in the borehole section. When the mini-packer is released, in connection to the monthly levellings, a sudden jump to the level in the standpipe occurs. Thereafter, when the mini-packer is inflated again, the pressure is slowly approaching the actual pressure in the borehole section.

KFM02A: Some sections in the borehole are influenced by the pumping performed in the neighbouring borehole KFM02B from the middle of March to the middle of May 2007.

KFM02B: Pumping (25 L/min) was performed between mid-March and mid-May 2007.

SFM0005, SFM0010 and SFM0058: By the look of the registration, the boreholes seem to be mostly dry during a period from July/August to October/November 2007. However, manual levellings performed during this period could not confirm this and therefore no data have been omitted.

SFM0006: The borehole is reported to be dry from the end of June 2007 to the middle of January 2008.

SFM0070: The borehole is reported to be dry at the levelling occasions in August through October 2007.

6 References

- /1/ **Nyberg G, Wass E, Askling P, Johansson P-O, 2004.** Forsmark site investigation. Hydro monitoring program. Report for June 2002–July 2004. SKB P-04-313, Svensk Kärnbränslehantering AB.
- /2/ **Nyberg G, Wass E, 2005.** Forsmark site investigation. Hydro Monitoring Program. Report for August 2004–July 2005. SKB P-05-245, Svensk Kärnbränslehantering AB.
- /3/ **Nyberg G, Wass E, 2006.** Forsmark site investigation. Hydro Monitoring Program. Report for August 2005–September 2006. SKB P-06-263, Svensk Kärnbränslehantering AB.
- /4/ **Nyberg G, Wass E, 2007.** Forsmark site investigation. Hydro monitoring program. Report for October 2006–March 2007. SKB P-07-113, Svensk Kärnbränslehantering AB.

Appendix 1

Monitored borehole sections and surface water level gauges

Percussion- and core-drilled surface boreholes and SFR-boreholes

Borehole	Section no	Start date	Stop date	Secup (mbl)#	Seclow (mbl)	Circ section	Elevation Secup (m RHB70)	Elevation SecMid (m RHB70)
HFM01	1	2003-06-16	2003-09-08	0.00	200.20		1.73	-96.89
	1	2005-08-11	2006-10-25	0.00	200.20		1.73	-96.89
	1	2006-10-26		46.50	200.20		-43.91	-119.90
	2	2006-10-26		33.50	45.50	x	-31.10	-37.02
	3	2006-10-26		0.00	32.50		1.73	-14.15
HFM02	1	2002-12-10	2003-01-23	0.00	100.00		3.05	-46.90
	1	2003-01-23	2004-03-15	0.00	100.00		3.05	-46.90
	1	2004-03-18		49.00	100.00		-45.90	-71.38
	2	2004-03-18		38.00	48.00	x	-34.91	-39.91
HFM03	3	2004-03-18		0.00	37.00		3.05	-15.43
	1	2003-01-30	2004-03-05	0.00	26.00		3.15	-9.84
	1	2004-03-18		19.00	26.00		-15.83	-19.32
HFM04	2	2004-03-18		0.00	18.00		3.15	-5.84
	1	2002-12-10	2003-12-10	0.00	221.70		3.87	-106.58
	1	2003-12-10	2004-02-23	0.00	221.70		3.87	-106.58
HFM05	1	2004-03-02		66.90	221.70		-62.81	-139.61
	2	2004-03-02		57.90	65.90	x	-53.83	-57.82
	3	2004-03-02		0.00	56.90		3.87	-24.46
	1	2004-05-12	2007-05-28	0.00	200.10		7.67	-92.09
HFM07	1	2007-05-30		139.00	200.10		-130.59	-160.51
	2	2007-05-30		0.00	138.00		7.67	-61.20
	1	2003-02-17	2003-02-21	0.00	122.50		5.78	-55.27
HFM08	1	2003-02-21	2003-12-10	0.00	122.50		5.78	-55.27
	1	2003-12-10		0.00	122.50		5.78	-55.27
	1	2003-02-27	2003-03-14	0.00	143.50		7.13	-64.49
HFM09	1	2003-03-17	2003-07-09	101.50	143.50		-94.02	-114.72
	2	2003-03-17	2003-07-09	82.00	100.50		-74.69	-83.87
	3	2003-03-17	2003-07-09	0.00	81.00		7.13	-33.29
	1	2004-03-05	2005-02-08	0.00	143.50		7.13	-64.49
	1	2005-02-09		117.00	143.50		-109.31	-122.33
	2	2005-02-09		0.00	116.00		7.13	-50.78
HFM10	1	2003-08-20	2003-10-27	0.00	50.25		5.15	-18.26
	1	2003-10-27		0.00	50.25		5.15	-18.26
HFM11	1	2003-12-16	2004-11-02	0.00	150.00		4.99	-65.40
	1	2004-11-04		100.00	150.00		-88.51	-111.42
	2	2004-11-04		0.00	99.00		4.99	-41.54
HFM12	1	2003-09-09	2003-09-30	0.00	182.35		7.56	-59.14
	1	2004-01-22	2005-03-15	0.00	182.35		7.56	-59.14
	1	2005-03-16		54.00	182.35		-32.67	-77.75
	2	2005-03-16		0.00	53.00		7.56	-12.36
HFM13	1	2003-09-30	2003-10-03	0.00	209.55		7.03	-69.52
	1	2004-01-22	2005-03-15	0.00	209.55		7.03	-69.52
	1	2005-03-18		57.50	209.50		-35.83	-89.04
	2	2005-03-18		0.00	56.50		7.03	-14.38

Borehole	Section no	Start date	Stop date	Secup (mbl)#	Seclow (mbl)	Circ section	Elevation Secup (m RHB70)	Elevation SecMid (m RHB70)
HFM13	1	2003-10-03	2004-11-08	0.00	175.60		5.69	-70.91
	1	2004-12-16		159.00	173.00	x	-132.64	-138.63
	2	2004-12-16		101.00	158.00		-82.41	-107.18
	3	2004-12-16		0.00	100.00		5.69	-37.81
HFM14	1	2003-10-13	2003-10-15	0.00	150.50		3.91	-62.22
	1	2003-11-10	2004-01-21	0.00	150.50		3.91	-62.22
	1	2004-01-21		0.00	150.50		3.91	-62.22
HFM15	1	2003-11-03	2004-01-21	0.00	99.50		3.88	-31.08
	1	2004-01-23	2005-01-31	0.00	99.50		3.88	-31.08
	1	2005-02-04		85.00	95.00	x	-55.70	-59.11
	2	2005-02-04		0.00	84.00		3.88	-25.65
HFM16	1	2003-11-26		2004-09-29	0.00	132.50		3.21
	1	2004-09-29	2005-11-17	0.00	132.50		3.21	-62.93
	1	2005-11-28		68.00	132.50		-64.67	-96.80
	2	2005-11-28	54.00	67.00	x	-50.69	-57.18	
	3	2005-11-28	0.00	53.00		3.21	-23.20	
HFM17	1	2003-12-10		0.00	210.65		3.75	-100.94
HFM18	1	2004-05-04	2005-12-07	0.00	180.65		5.04	-70.75
	1	2005-12-07		42.00	180.65		-30.53	-87.90
	2	2005-12-07		28.00	41.00		-18.75	-24.22
	3	2005-12-07		0.00	27.00		5.04	-6.49
HFM19	1	2004-02-13	2004-04-29	151.00	182.00		-117.64	-129.60
	2	2004-02-13	2004-04-29	111.00	150.00		-86.76	-101.84
	3	2004-02-13	2004-04-29	0.00	110.00		3.66	-42.31
	1	2004-05-07	2004-09-29	0.00	182.00		3.66	-71.16
	1	2005-01-25		168.00	182.00	x	-130.75	-136.13
	2	2005-01-25		104.00	167.00		-81.32	-105.69
	3	2005-01-25		0.00	103.00		3.66	-39.47
HFM20	1	2004-06-03	2005-02-18	0.00	301.00		2.97	-147.33
	1	2005-03-03		131.00	301.00		-127.84	-212.74
	2	2005-03-03		101.00	130.00		-97.85	-112.34
	3	2005-03-03		49.00	100.00		-45.88	-71.36
	4	2005-03-03		0.00	48.00		2.97	-20.95
HFM21	1	2004-06-09	2004-06-14	38.00	202.00		-28.03	-94.29
	2	2004-06-09	2004-06-14	0.00	37.00		3.98	-11.68
	1	2004-06-14	2006-09-26	0.00	202.00		3.98	-79.41
	1	2006-09-30		107.00	202.00		-84.14	-120.20
	2	2006-09-30		33.00	106.00		-23.84	-54.02
	3	2006-09-30		22.00	32.00	x	-14.62	-18.82
	4	2006-09-30	0.00	21.00		3.98	-4.94	
HFM22	1	2004-09-13	2004-09-16	0.00	222.00		1.54	-86.49
	1	2004-10-20		0.00	222.00		1.54	-86.49
HFM23	1	2005-09-05		0.00	211.50		4.25	-66.08
HFM24	1	2005-12-06	2006-11-28	18.03	151.35		-11.74	-69.40
	1	2006-12-01		66.00	151.35		-52.98	-90.73
	2	2006-12-01		36.00	65.00		-26.99	-39.49
	3	2006-12-01		0.00	35.00		3.68	-11.29
HFM25	1	2007-06-18		0.00	187.50		3.86	-70.90
HFM26	1	2006-03-15		0.00	202.70		2.73	-74.36

Borehole	Section no	Start date	Stop date	Secup (mbl)#	Seclow (mbl)	Circ section	Elevation Secup (m RHB70)	Elevation SecMid (m RHB70)
HFM27	1	2005-12-06	2006-04-24	12.03	127.50		-8.69	-61.88
	1	2006-04-27		59.00	127.50		-52.03	-83.45
	2	2006-04-27		46.00	58.00	x	-40.09	-45.60
	3	2006-04-27		25.00	45.00		-20.70	-29.96
	4	2006-04-27		0.00	24.00		2.44	-8.66
HFM28	1	2006-03-16		0.00	151.20		4.27	-70.65
HFM29	1	2006-03-15		0.00	199.70		4.47	-84.10
HFM30	1	2006-05-18	2007-04-17	0.00	200.75		3.13	-81.56
	1	2007-04-23		177.00	200.75		-149.47	-160.01
	2	2007-04-23		74.00	176.00		-58.71	-103.27
	3	2007-04-23		61.00	73.00		-47.63	-52.73
	4	2007-04-23		0.00	60.00		3.13	-21.66
HFM31	1	2006-05-22		0.00	200.75		6.07	-86.83
HFM32	1	2006-01-26		98.00	202.65		-96.27	-147.51
	2	2006-01-26		32.00	97.00		-30.95	-63.24
	3	2006-01-26		26.00	31.00	x	-24.97	-27.46
	4	2006-01-26		0.00	25.00		0.97	-11.50
HFM33	1	2006-05-18		0.00	140.20		2.62	-55.84
HFM34	1	2006-06-13	2006-07-03	0.00	200.75		2.45	-82.92
	1	2006-07-05		91.00	200.75		-75.12	-119.83
	2	2006-07-05		22.00	90.00		-16.35	-45.52
	3	2006-07-05		0.00	21.00		2.45	-6.52
HFM35	1	2006-08-17		182.00	200.75		-137.33	-143.89
	2	2006-08-17		151.00	181.00		-115.43	-126.09
	3	2006-08-17		34.00	150.00		-26.57	-71.87
	4	2006-08-17		0.00	33.00		1.90	-12.10
HFM36	1	2006-09-05		0.00	152.55		8.41	-53.52
HFM37	1	2006-09-05		0.00	191.75		11.39	-74.10
HFM38	1	2006-06-28	2007-02-26	0.00	200.75		2.21	-74.85
	1	2007-03-01		42.00	200.75		-31.40	-89.55
	2	2007-03-01		24.00	41.00		-17.21	-23.98
	3	2007-03-01		0.00	23.00		2.21	-7.13
KFM01A	1	2003-06-17	2003-12-16	132.00	1001.49		-128.22	-558.63
	2	2003-06-17	2003-12-16	110.00	131.00		-106.34	-116.78
	3	2003-06-17	2003-12-16	0.00	109.00		3.13	-51.12
	1	2004-02-24	2004-05-07	0.00	1001.49		3.13	-493.66
	1	2004-06-04	2004-10-25	0.00	1001.49		3.13	-493.66
	1	2004-11-26		431.00	1001.49		-424.77	-705.14
	2	2004-11-26		374.00	430.00		-368.37	-396.09
	3	2004-11-26		205.00	373.00		-200.75	-284.12
	4	2004-11-26		131.00	204.00		-127.22	-163.50
	5	2004-11-26		109.00	130.00	x	-105.34	-115.79
KFM01B	6	2004-11-26		0.00	108.00		3.13	-50.62
	1	2004-10-14		142.00	500.52		-135.77	-308.72
	2	2004-10-14		101.00	141.00		-95.80	-115.31
KFM01C	3	2004-10-14		0.00	100.00		3.09	-45.92
	1	2006-06-22		238.00	450.00		-177.03	-255.79
	2	2006-06-22		59.00	237.00		-41.96	-109.26
	3	2006-06-22		0.00	58.00		2.91	-19.19

Borehole	Section no	Start date	Stop date	Secup (mbl)#	Seclow (mbl)	Circ section	Elevation Secup (m RHB70)	Elevation SecMid (m RHB70)	
KFM01D	1	2007-04-11		439.00	800.24		-347.25	-482.27	
	2	2007-04-11		429.00	438.00	x	-339.57	-343.03	
	3	2007-04-11		322.00	428.00		-257.20	-298.16	
	4	2007-04-11		311.00	321.00	x	-248.63	-252.53	
	5	2007-04-11		253.00	310.00		-202.87	-225.52	
	6	2007-04-11		154.00	252.00		-122.99	-162.79	
	7	2007-04-11		0.00	153.00		2.95	-59.60	
KFM02A	1	2004-03-29	2004-04-28	0.00	1,002.44		7.35	-492.20	
	1	2004-05-12	2004-10-22	0.00	1,002.44		7.35	-492.20	
	1	2005-04-11	2005-05-17	0.00	1,002.44		7.35	-492.20	
	1	2005-06-13		889.00	1,002.44		-876.80	-932.87	
	2	2005-06-13		519.00	888.00		-509.90	-693.08	
	3	2005-06-13		490.00	518.00	x	-481.04	-494.97	
	4	2005-06-13		443.00	489.00		-434.23	-457.14	
	5	2005-06-13		411.00	442.00	x	-402.36	-417.80	
KFM02B	6	2005-06-13		241.00	410.00		-232.98	-317.18	
	7	2005-06-13		133.00	240.00		-125.31	-178.66	
	8	2005-06-13		0.00	132.00		7.35	-58.46	
	1	2007-06-21		507.00	570.00		-492.18	-523.15	
	2	2007-06-21		491.00	506.00	x	-476.45	-483.83	
	3	2007-06-21		432.00	490.00		-418.38	-446.93	
	4	2007-06-21		410.00	431.00	x	-396.71	-407.05	
	5	2007-06-21		246.00	409.00		-235.07	-315.41	
KFM03A	6	2007-06-21		131.00	245.00		-121.67	-177.89	
	7	2007-06-21		0.00	130.00		7.62	-56.51	
	1	2003-12-15	2004-01-28	0.00	1,001.19		8.29	-490.66	
	1	2004-08-06	2004-11-15	0.00	1,001.19		8.29	-490.66	
	1	2005-05-09		969.50	994.50	x	-956.73	-969.13	
	2	2005-05-09		820.50	968.50		-808.79	-882.28	
	3	2005-05-09		651.00	819.50		-640.30	-724.04	
	4	2005-05-09		633.50	650.00	x	-622.90	-631.10	
KFM03B	5	2005-05-09		472.50	632.50		-462.70	-542.31	
	6	2005-05-09		402.50	471.50		-393.00	-427.35	
	7	2005-05-09		351.50	401.50		-342.21	-367.11	
	8	2005-05-09		0.00	350.50		8.29	-166.53	
	1	2005-01-27		52.00	101.54		-43.34	-68.01	
	2	2005-01-27		0.00	51.00		8.47	-16.94	
	KFM04A	1	2004-02-24	2004-04-07	0.00	1,001.42		8.77	-420.65
		1	2004-06-30	2006-01-17	0.00	1,001.42		8.77	-420.65
1		2006-06-27	2006-08-28	169.00	1,001.42		-139.99	-487.98	
2		2006-06-27	2006-08-28	0.00	168.00		8.77	-64.76	
1		2006-12-22		496.00	1,001.00		-416.86	-613.74	
2		2006-12-22		391.00	495.00		-330.90	-373.85	
3		2006-12-22		246.00	390.00		-207.20	-269.10	
4		2006-12-22		230.00	245.00	x	-193.32	-199.83	
KFM05A	5	2006-12-22		186.00	229.00		-154.93	-173.74	
	6	2006-12-22		164.00	185.00		-135.59	-144.83	
	7	2006-12-22		0.00	163.00		8.77	-62.55	
	1	2004-06-11	2004-12-07	0.00	1002.711		5.53	-419.89	
	1	2005-08-30		699.00	1,002.71		-581.43	-704.40	
	2	2005-08-30		490.00	698.00		-410.57	-495.72	

Borehole	Section no	Start date	Stop date	Secup (mbl)#	Seclow (mbl)	Circ section	Elevation Secup (m RHB70)	Elevation SecMid (m RHB70)
	3	2005-08-30		273.00	489.00		-229.88	-320.33
	4	2005-08-30		254.00	272.00	x	-213.75	-221.40
	5	2005-08-30		115.00	253.00		-94.20	-153.86
	6	2005-08-30		0.00	114.00		5.53	-43.82
KFM06A	1	2005-10-18		827.00	1,000.64		-690.52	-759.54
	2	2005-10-18		749.00	826.00		-627.66	-658.83
	3	2005-10-18		738.00	748.00	x	-618.71	-622.78
	4	2005-10-18		363.00	737.00		-308.26	-464.36
	5	2005-10-18		341.00	362.00	x	-289.65	-298.54
	6	2005-10-18		247.00	340.00		-209.59	-249.29
	7	2005-10-18		151.00	246.00		-126.95	-167.98
	8	2005-10-18		0.00	150.00		4.10	-61.02
KFM06B	1	2005-09-05	2005-12-21	0.00	100.33		4.13	-45.72
	1	2006-01-09		51.00	100.33		-46.55	-71.05
	2	2006-01-09		27.00	50.00		-22.71	-34.13
	3	2006-01-09		0.00	26.00		4.13	-8.79
KFM06C	1	2006-06-07		873.00	1,000.91		-688.89	-735.68
	2	2006-06-07		667.00	872.00		-534.94	-611.65
	3	2006-06-07		647.00	666.00	x	-519.89	-527.04
	4	2006-06-07		541.00	646.00		-439.09	-479.36
	5	2006-06-07		531.00	540.00	x	-431.37	-434.84
	6	2006-06-07		402.00	530.00		-330.76	-380.97
	7	2006-06-07		351.00	401.00		-290.04	-310.06
	8	2006-06-07		281.00	350.00		-233.15	-261.36
	9	2006-06-07		187.00	280.00		-155.52	-194.07
	10	2006-06-07		0.00	186.00		4.09	-76.03
KFM07A	1	2005-05-16	2005-10-10	271.00	1,001.55		-230.05	-534.19
	2	2005-05-16	2005-10-10	0.00	270.00		3.33	-113.30
	1	2005-11-09	2006-06-26	271.00	1,001.00		-230.05	-533.97
	2	2005-11-09	2006-06-26	100.35	270.00		-83.28	-156.60
	1	2007-02-02		973.00	1,002.10		-799.66	-810.35
	2	2007-02-02		963.00	972.00	x	-792.26	-795.59
	3	2007-02-02		226.00	961.00		-191.67	-499.24
	4	2007-02-02		191.00	225.00		-161.62	-176.23
	5	2007-02-02		149.00	190.00		-125.41	-143.10
	6	2007-02-02		0.00	148.00		3.33	-60.47
KFM07B	1	2006-05-03	2006-12-18	0.00	298.93		3.36	-117.39
	1	2007-01-12		203.00	298.93		-160.23	-199.20
	2	2007-01-12		75.00	202.00		-57.83	-108.74
	3	2007-01-12		0.00	74.00		3.36	-26.90
KFM07C	1	2007-02-14		302.00	500.34		-297.03	-395.69
	2	2007-02-14		161.00	301.00		-156.81	-226.42
	3	2007-02-14		111.00	160.00		-107.11	-131.46
	4	2007-02-14		0.00	110.00		3.35	-51.42
KFM08A	1	2005-05-21	2005-05-31	0.00	1,001.19		2.49	-409.93
	1	2006-01-24	2006-05-16	506.00	1,001.19		-414.10	-596.64
	2	2006-01-24	2006-05-16	100.55	505.00		-84.11	-252.53
	1	2006-10-18	2007-10-18	0.00	1,001.19		2.49	-409.93
	1	2007-10-18		695.00	1,001.19		-554.89	-661.51
	2	2007-10-18		684.00	694.00	x	-546.94	-550.55
	3	2007-10-18		504.00	683.00		-412.56	-480.45

Borehole	Section no	Start date	Stop date	Secup (mbl)#	Seclow (mbl)	Circ section	Elevation Secup (m RHB70)	Elevation SecMid (m RHB70)
	4	2007-10-18		474.00	503.00		-389.27	-400.57
	5	2007-10-18		281.00	473.00		-234.76	-312.48
	6	2007-10-18		265.00	280.00	x	-221.64	-227.79
	7	2007-10-18		216.00	264.00		-181.15	-201.05
	8	2007-10-18		162.00	215.00		-135.99	-158.18
	9	2007-10-18		0.00	161.00		2.49	-67.05
KFM08B	1	2005-04-18	2006-02-02	0.00	200.54		2.25	-82.94
	1	2006-02-21		113.00	200.54		-93.68	-130.46
	2	2006-02-21		71.00	112.00		-58.14	-75.52
	3	2006-02-21		0.00	70.00		2.25	-27.57
KFM08C	1	2007-04-05		761.00	950.00		-630.87	-705.84
	2	2007-04-05		611.00	760.00		-510.27	-570.44
	3	2007-04-05		311.00	610.00		-262.83	-386.98
	4	2007-04-05		146.00	310.00		-123.75	-193.23
	5	2007-04-05		0.00	145.00		2.47	-60.29
KFM08D	1	2007-09-20		836.00	950.00		-667.16	-710.78
	2	2007-09-20		825.00	835.00	x	-658.71	-662.55
	3	2007-09-20		681.00	824.00		-546.70	-602.57
	4	2007-09-20		660.00	680.00	x	-530.20	-538.06
	5	2007-09-20		331.00	659.00		-266.64	-399.21
	6	2007-09-20		161.00	330.00		-128.26	-196.50
	7	2007-09-20		0.00	160.00		2.61	-63.02
KFM09A	1	2006-09-14		551.00	799.67		-445.62	-536.77
	2	2006-09-14		301.00	550.00		-248.28	-348.20
	3	2006-09-14		0.00	300.00		4.29	-123.11
KFM09B	1	2006-09-26		451.00	616.45		-353.72	-414.32
	2	2006-09-26		201.00	450.00		-159.18	-257.66
	3	2006-09-26		0.00	200.00		4.30	-77.66
KFM10A	1	2007-02-19		441.00	500.16		-303.45	-321.01
	2	2007-02-19		430.00	440.00	x	-296.80	-299.83
	3	2007-02-19		353.00	429.00		-248.57	-272.72
	4	2007-02-19		153.00	352.00		-110.36	-181.24
	5	2007-02-19		0.00	152.00		4.51	-53.22
KFM11A	1	2007-09-04		711.00	850.00		-602.55	-657.73
	2	2007-09-04		690.00	710.00	x	-585.75	-593.76
	3	2007-09-04		457.00	689.00		-394.69	-491.25
	4	2007-09-04		446.00	456.00	x	-385.40	-389.62
	5	2007-09-04		361.00	445.00		-313.06	-348.95
	6	2007-09-04		131.00	360.00		-112.97	-213.41
	7	2007-09-04		0.00	130.00		2.95	-54.34
KFM12A	1	2007-11-13		491.00	601.00		-410.16	-455.84
	2	2007-11-13		281.00	490.00		-231.91	-321.29
	3	2007-11-13		270.00	280.00	x	-222.43	-226.74
	4	2007-11-13		166.00	269.00		-132.90	-177.19
	5	2007-11-13		0.00	165.00		10.74	-60.87

Borehole	Section no	Start date	Stop date	Secup (mbl)#	Seclow (mbl)	Circ section	Elevation Secup (m RHB70)	Elevation SecMid (m RHB70)
KFR01	1	1984-12-08	2008-03-13	44.50	62.30		-89.13	-97.20
	2	1984-12-08	2008-03-13	11.00	43.50		-58.77	-73.50
	1	2008-04-01		44.65	65.00		-89.27	-98.49
	2	2008-04-01		11.15	43.65		-58.90	-73.63
KFR02	1	1986-03-24	2008-03-11	137.00	170.30		-222.83	-239.48
	2	1986-03-24	2008-03-11	119.00	136.00		-204.83	-213.33
	3	1986-03-24	2008-03-11	81.00	118.00		-166.83	-185.33
	1	2008-04-01		137.24	170.30		-223.07	-239.60
	2	2008-04-01		119.24	136.24		-205.07	-213.57
	3	2008-04-01		81.24	118.24		-167.07	-185.57
	4	2008-04-01		43.24	80.24		-129.07	-147.57
KFR03	1	2008-04-01		81.16	106.00		-163.56	-175.98
	2	2008-04-01		57.16	80.16		-139.56	-151.06
	3	2008-04-01		45.16	56.16		-127.56	-133.06
	4	2008-04-01		5.16	44.16		-87.56	-107.06
KFR04	1	2008-04-01		84.09	101.00		-158.42	-166.59
	2	2008-04-01		44.09	83.09		-119.79	-138.62
	3	2008-04-01		28.09	43.09		-104.33	-111.58
	4	2008-04-01		5.09	27.09		-82.12	-92.74
KFR05	1	2008-04-01		97.15	131.00		-168.69	-184.60
	2	2008-04-01		80.15	96.15		-152.72	-160.23
	3	2008-04-01		57.15	79.15		-131.10	-141.44
	4	2008-04-01		12.15	56.15		-88.82	-109.49
KFR7A	1	2008-04-01		48.11	74.70		-134.05	-134.51
	2	2008-04-01		20.11	47.11		-133.07	-133.54
	3	2008-04-01		2.11	19.11		-132.44	-132.74
KFR7B	1	1985-10-02	2008-01-25	8.00	21.10		-133.77	-134.00
	1	2008-04-01		8.60	21.10		-133.79	-134.01
	2	2008-04-01		3.40	7.60		-133.61	-133.68
KFR08	1	2008-04-01		62.95	104.00		-91.59	-93.38
	2	2008-04-01		35.95	61.95		-89.23	-90.37
	3	2008-04-01		5.95	34.95		-86.62	-87.88
KFR09	1	1985-10-02		0.00	80.24		-77.55	-81.05
KFR13	1	2008-04-01		53.75	76.60		*	*
	2	2008-04-01		33.75	52.75		*	*
	3	2008-04-01		3.75	32.75		*	*
KFR19	1	2008-04-01		95.57	110.00		-57.95	-56.23
	2	2008-04-01		77.57	94.57		-62.25	-60.22
	3	2008-04-01		66.82	76.57		-64.81	-63.65
	4	2008-04-01		51.82	65.82		-68.39	-66.72
KFR55	1	2008-04-01		48.53	62.00		-134.86	-136.14
	2	2008-04-01		39.53	47.53		-133.14	-133.91
	3	2008-04-01		21.53	38.53		-129.71	-131.33
	4	2008-04-01		7.53	20.53		-127.04	-128.28
KFR56	1	2008-04-01		9.55	81.70		-80.31	-64.50

mbl = metres borehole length from TOC (Top Of Casing).

* Data is not found in Sicada.

Monitoring wells in soil and Surface water level gauges

Borehole	Section no	Section installed		Borehole length#		Comment
		from	to	from (m)	to (m)	
SFM0001	1	2002-05-23		0.0	4.95*	
	screen			3.95	4.95	
SFM0003	1	2002-05-30		0.0	11.0*	
	screen			8.98	10.98	
SFM0004	1	2002-12-03		0.0	6.02*	
	screen			5.02	6.02	
SFM0005	1	2002-12-10		0.0	3.21*	
	screen			2.21	3.21	
SFM0006	1	2003-01-10		0.0	4.21*	
	screen			3.21	4.21	
SFM0008	1	2003-02-17		0.0	6.14*	
	screen			5.14	6.14	
SFM0010	1	2003-03-27		0.0	3.0*	
	screen			1.0	2.0	
SFM0011	1	2003-03-26		0.0	5.5*	
	screen			3.5	4.5	
SFM0012	1	2003-02-24		0.0	6.35*	
	screen			5.35	6.35	
SFM0013	1	2003-03-26		0.0	6.5*	
	screen			4.48	5.48	
SFM0014	1	2003-02-18		0.0	4.0*	
	screen			2.0	3.0	
SFM0015	1	2003-02-20		0.0	7.34*	
	screen			6.34	7.34	
SFM0017	1	2003-02-20		0.0	6.0*	
	screen			4.0	5.0	
SFM0019	1	2003-02-20		0.0	6.5*	
	screen			4.5	5.5	
SFM0021	1	2003-03-24		0.0	4.0*	
	screen			2.0	3.0	
SFM0022	1	2004-02-05		0.0	5.8*	
	screen			5.3	5.8	
SFM0023	1	2003-02-21		0.0	5.42*	
	screen			4.42	5.42	
SFM0025	1	2003-02-25		0.0	7.06*	
	screen			6.06	7.06	
SFM0026	1	2003-03-18		0.0	18.0*	
	screen			16.0	17.0	
SFM0027	1	2003-04-09		0.0	9.0*	
	screen			7.0	8.0	
SFM0028	1	2003-03-12		0.0	9.0*	
	screen			7.0	8.0	
SFM0030	1	2003-03-04		0.0	6.0*	
	screen			4.0	5.0	

Borehole	Section no	Section installed		Borehole length#		Comment
		from	to	from (m)	to (m)	
SFM0033	1	2003-03-04		0.0	5.0*	
	screen			3.0	4.0	
SFM0034	1	2003-03-10		0.0	4.0*	
	screen			2.0	3.0	
SFM0036	1	2003-03-11		0.0	4.0*	
	screen			1.99	2.99	
SFM0038	1	2003-05-22		**	**	Surface water level gauge
	screen			**	**	
SFM0039	1	2003-02-27		0.0	4.39*	Surface water level gauge
	screen			1.1	2.1	
SFM0040	1	2003-02-21		0.0	5.42*	Surface water level gauge
	screen			1.5	2.5	
SFM0041	1	2003-02-20		0.0	7.34*	Surface water level gauge
	screen			1.84	2.84	
SFM0042	1	2004-02-05		0.0	4.86*	Surface water level gauge
	screen			0.8	1.4	
SFM0049	1	2003-03-28		0.0	6.0*	
	screen			4.0	5.0	
SFM0057	1	2003-08-06		0.0	4.55*	
	screen			3.45	4.55	
SFM0058	1	2003-11-26		0.0	3.85*	
	screen			2.85	3.85	
SFM0061	1	2003-11-17		0.0	8.06*	
	screen			6.02	8.06	
SFM0062	1	2004-02-05		0.0	3.75*	
	screen			3.25	3.65	
SFM0064	1	2004-02-12		0.0	5.37*	Surface water level gauge
	screen			0.82	1.27	
SFM0067	1	2004-03-24		0.0	2.5*	
	screen			0.9	1.9	
SFM0068	1	2004-03-23		0.0	2.3*	
	screen			0.8	1.8	
SFM0069	1	2004-03-29		0.0	2.5*	
	screen			1.0	2.0	
SFM0070	1	2004-03-25		0.0	3.18*	
	screen			1.68	2.68	
SFM0071	1	2004-03-29		0.0	6.5*	
	screen			5.0	6.0	
SFM0072	1	2004-03-25		0.0	10.0*	
	screen			8.5	9.5	
SFM0073	1	2004-03-24		0.0	5.0*	
	screen			3.5	4.5	
SFM0075	1	2004-03-26		0.0	9.16*	
	screen			7.66	8.66	
SFM0077	1	2005-06-20		0.0	8.0*	
	screen			6.0	7.0	

Borehole	Section no	Section installed		Borehole length [#]		Comment
		from	to	from (m)	to (m)	
SFM0078	1	2005-06-21		0.0	5.5*	
	screen			3.5	4.5	
SFM0079	1	2005-06-22		0.0	6.7*	
	screen			4.7	5.7	
SFM0080	1	2005-11-30		0.0	9.62*	
	screen			8.62	9.62	
SFM0081	1	2006-01-25		0.0	5.25*	
	screen			4.85	5.25	
SFM0084	1	2006-02-28		0.0	4.1*	
	screen			3.7	4.1	
SFM0087	1	2006-03-07		0.0	2.35*	
	screen			2.0	2.2	
SFM0091	1	2006-02-28		0.0	2.3*	
	screen			1.9	2.3	
SFM0095	1	2006-02-15		0.0	7.0*	
	screen			5.0	6.0	
SFM0104	1	2006-02-24		0.0	6.0*	
	screen			4.0	5.0	
SFM0105	1	2006-02-23		0.0	4.0*	
	screen			2.0	3.0	
SFM0106	1	2006-02-22		0.0	4.85*	
	screen			3.0	4.0	
SFM0107	1	2006-02-21		0.0	7.0*	
	screen			5.0	6.0	

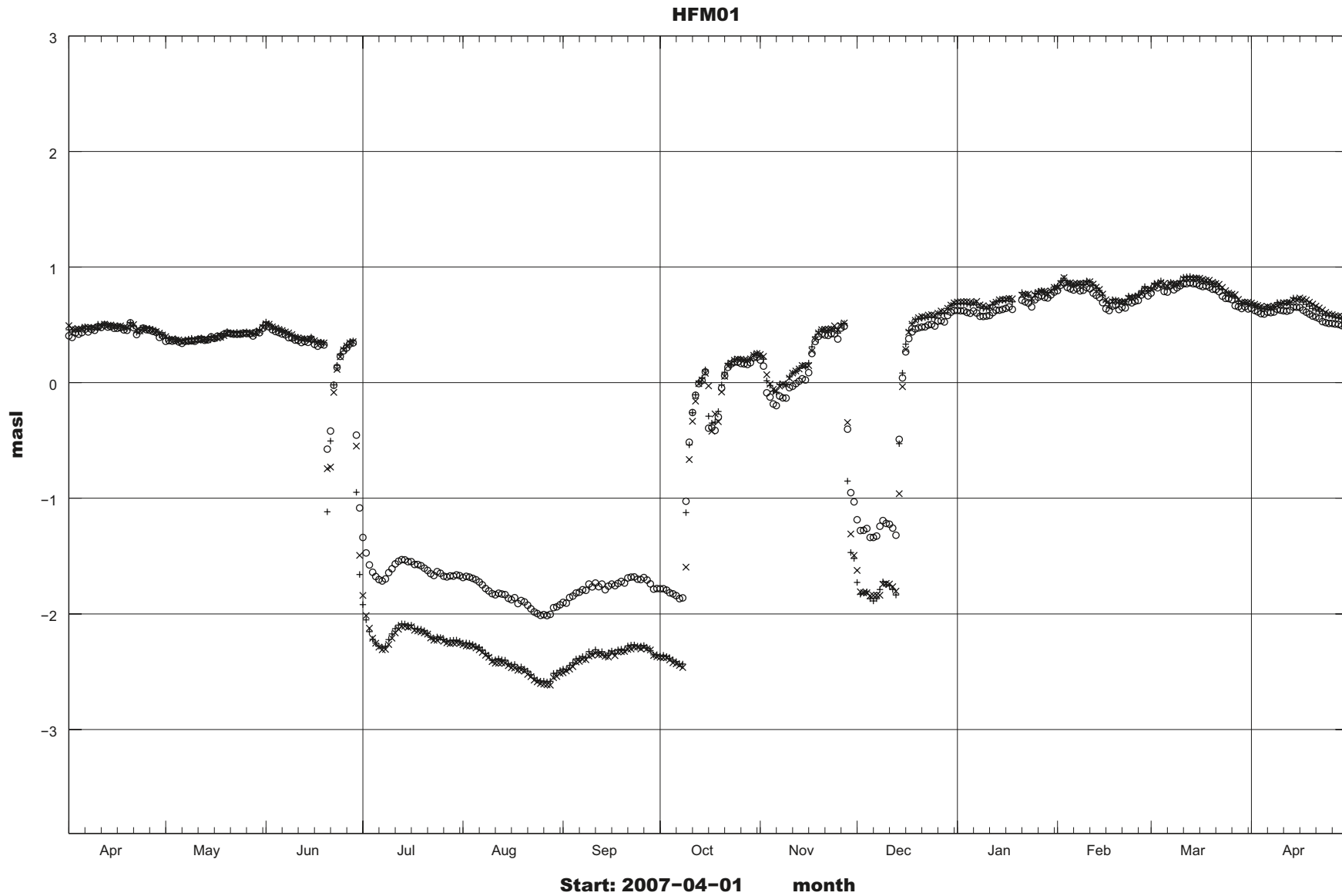
From top of stand-pipe.

* For the SFM-boreholes, the bottom of the section refers to the bottom of the plastic pipe installed in the borehole. The plastic pipe is screened.

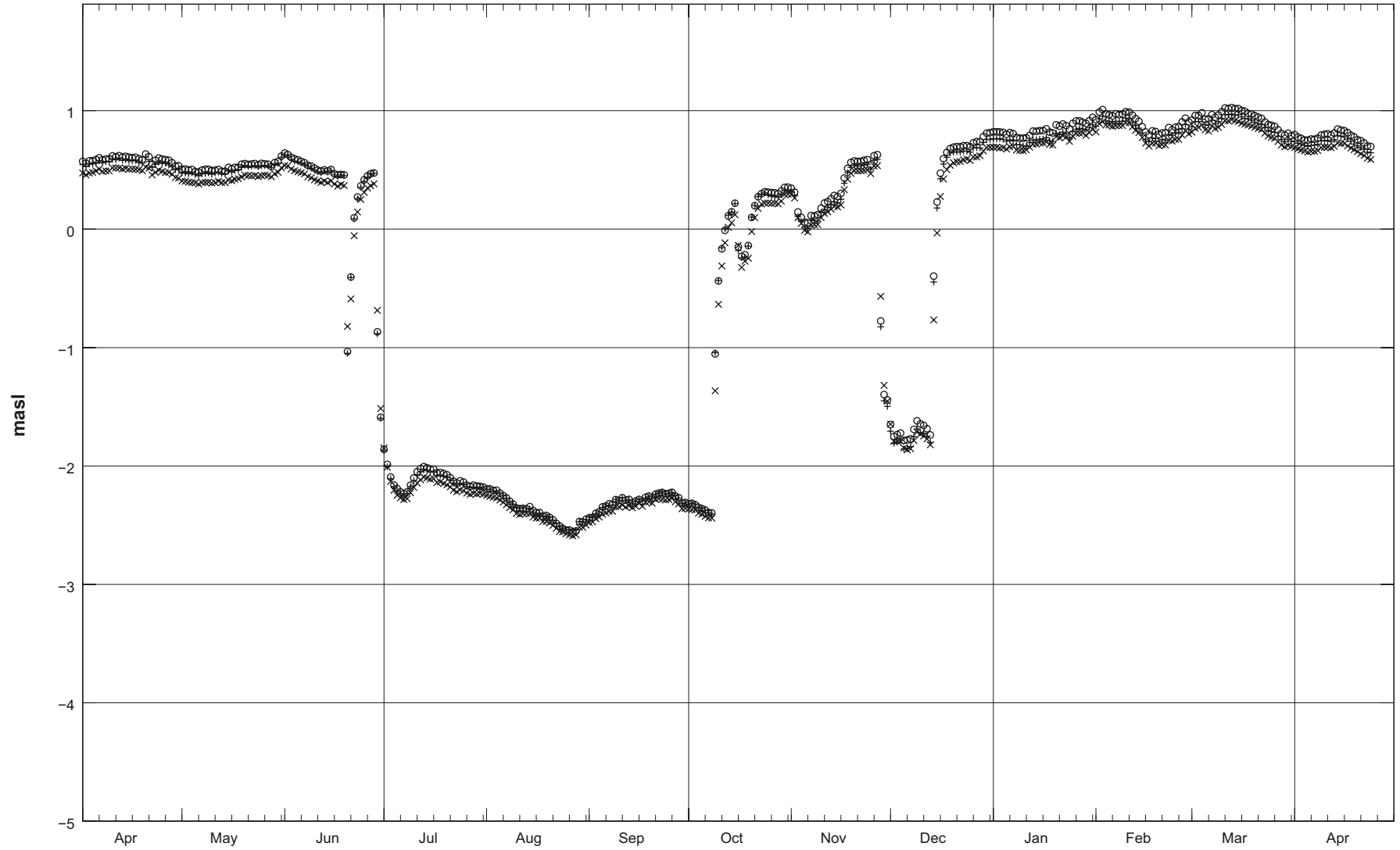
** Data are not found in Sicada.

Groundwater level and groundwater pressure

33

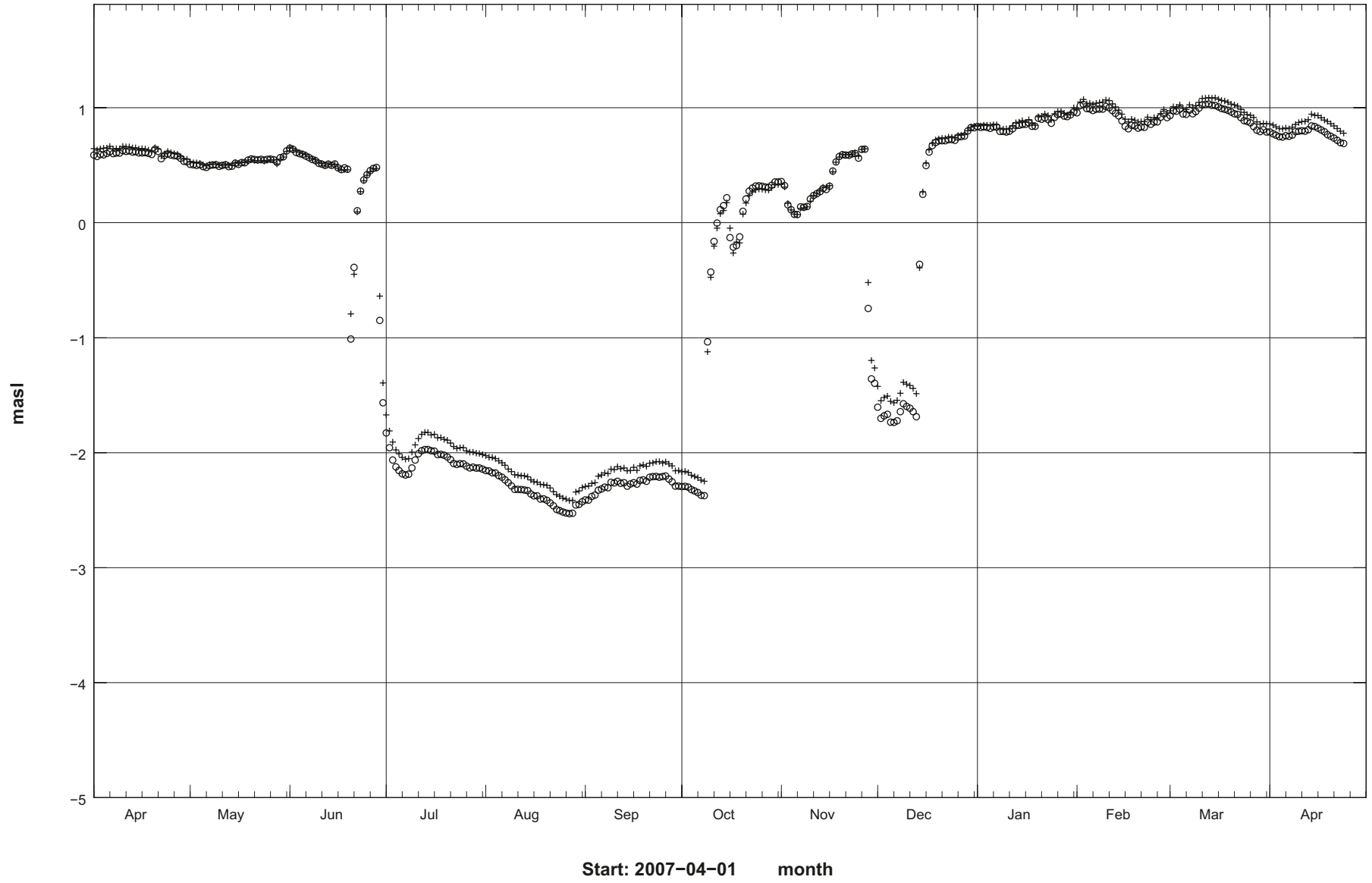


HFM02

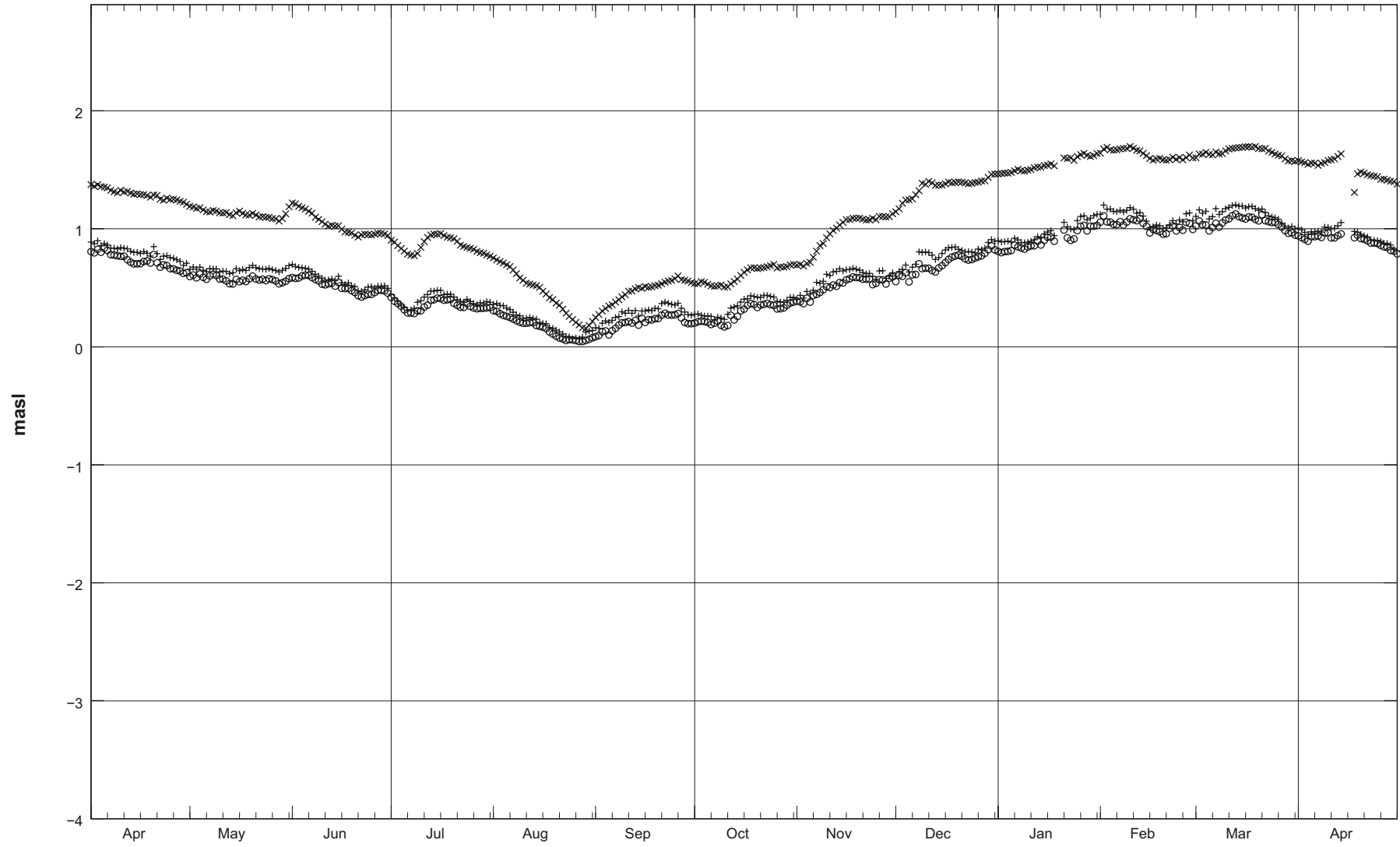


Start: 2007-04-01 month

HFM03

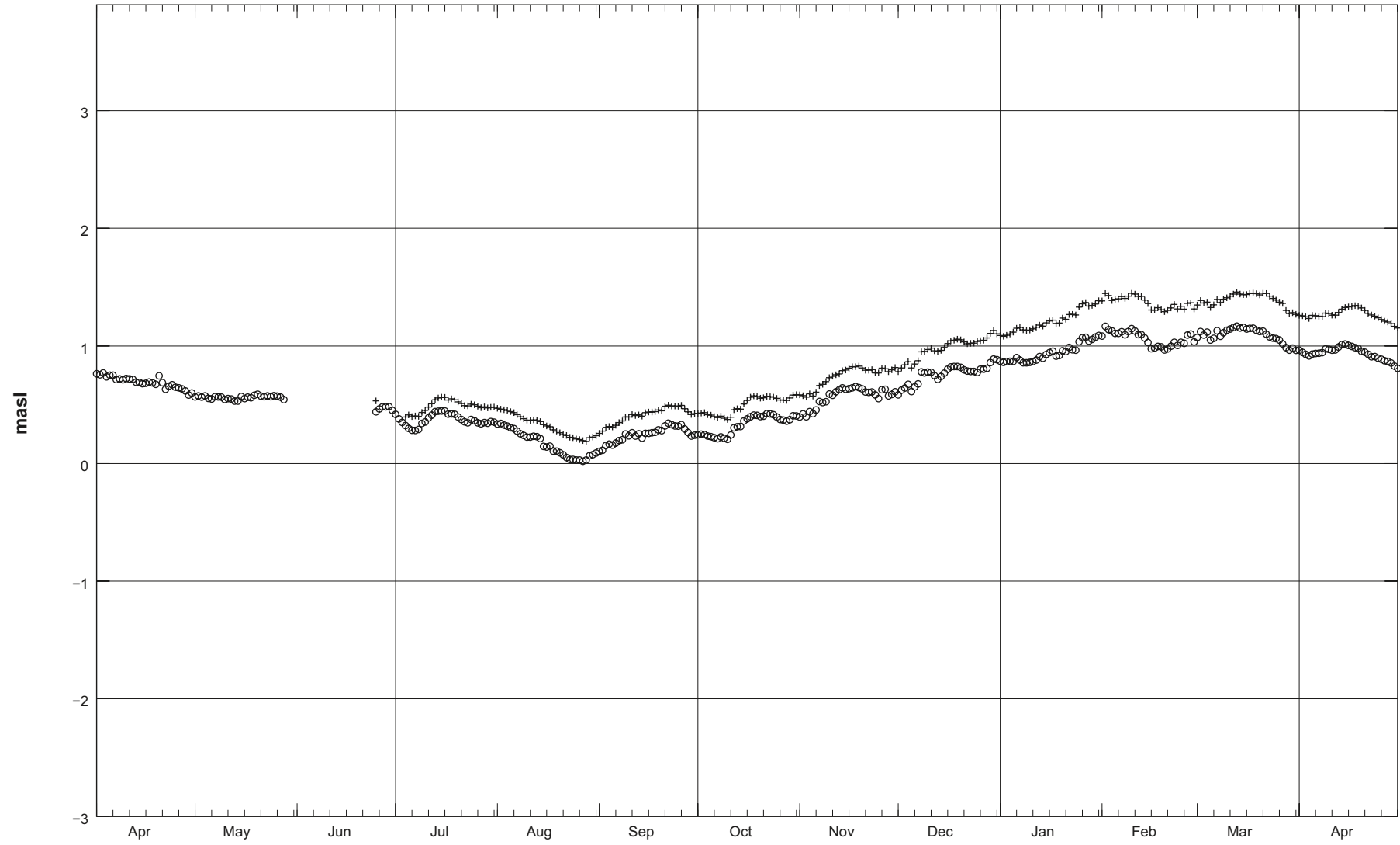


HFM04



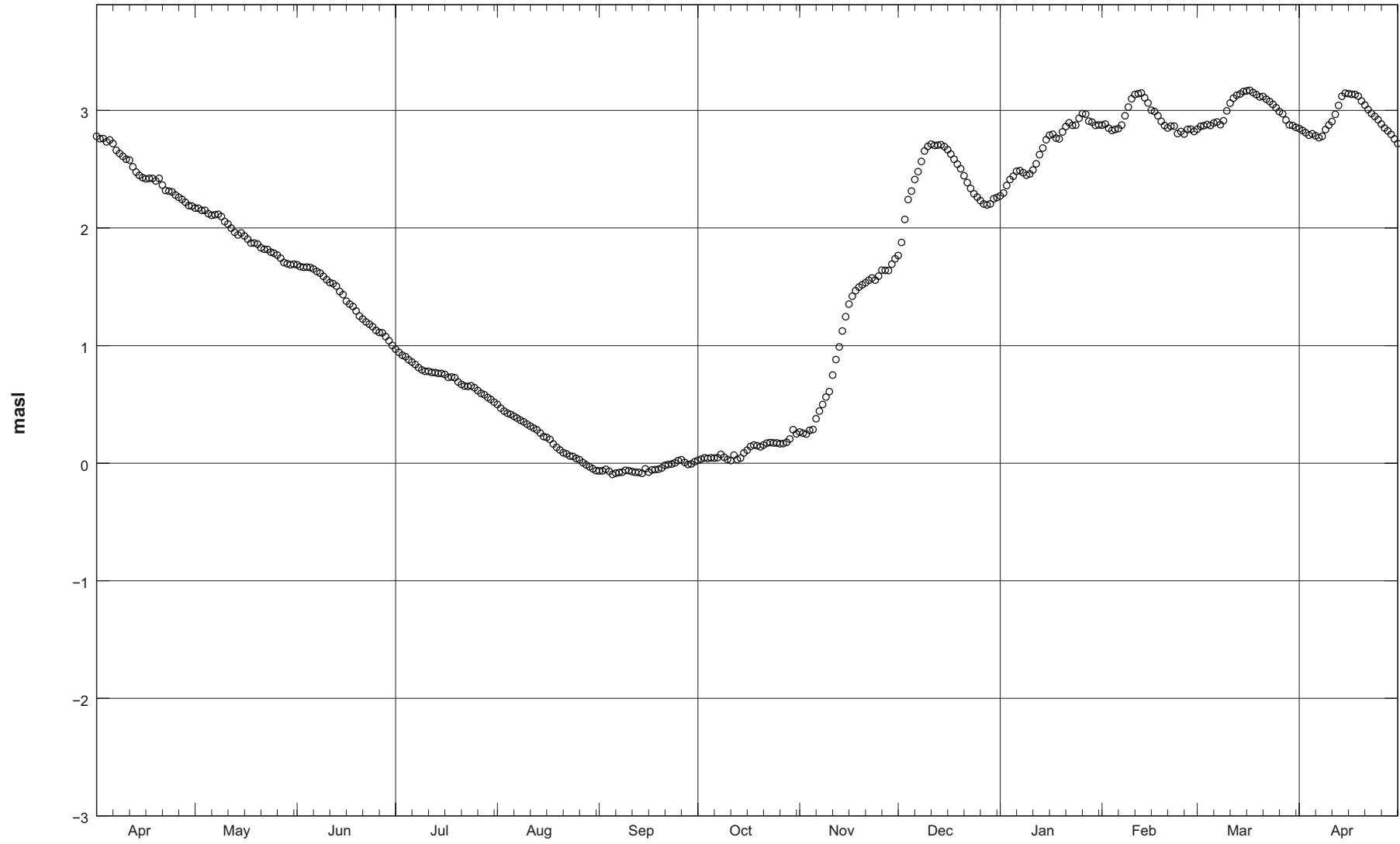
Start: 2007-04-01 month

HFM05



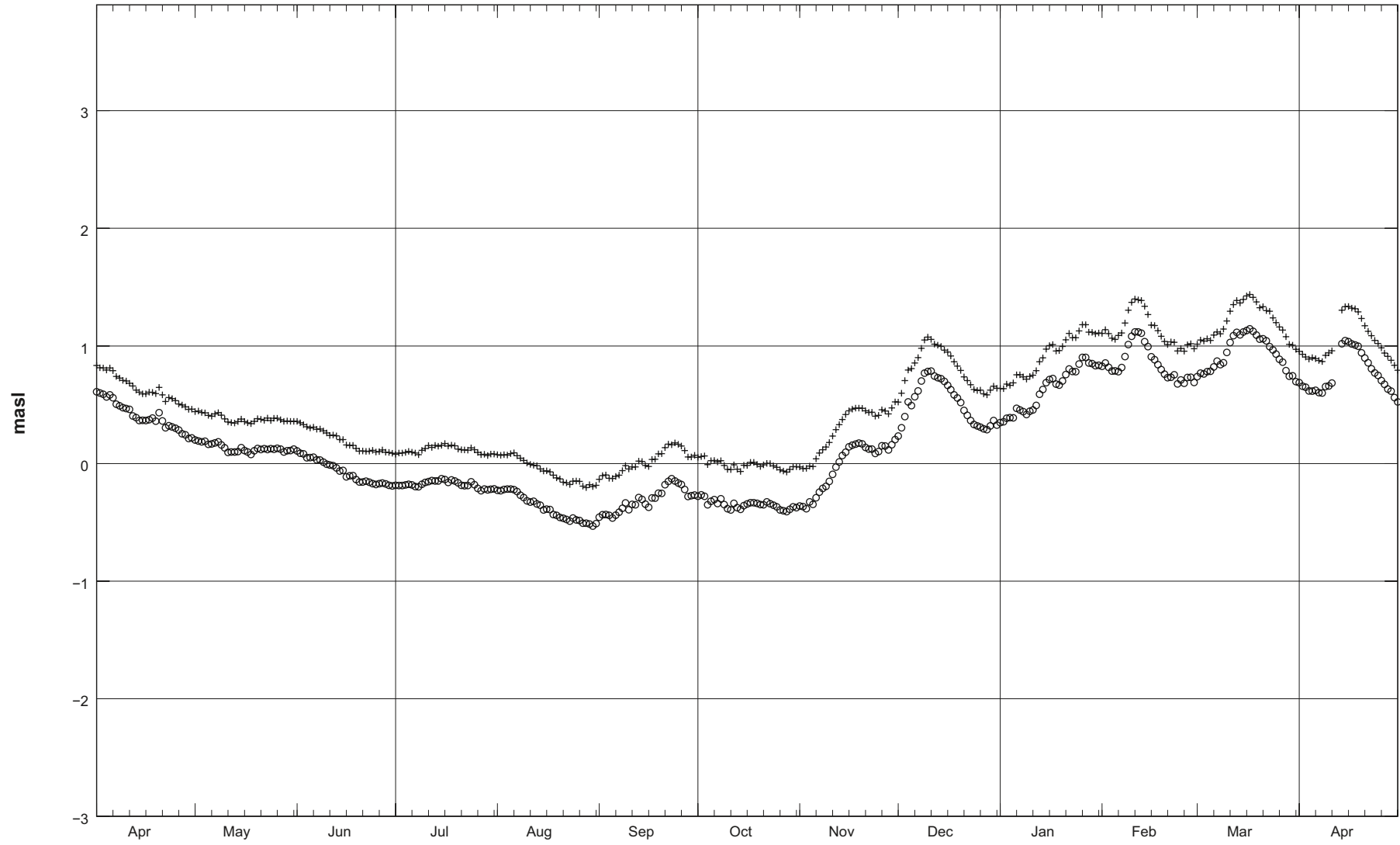
Start: 2007-04-01 month

HFM07



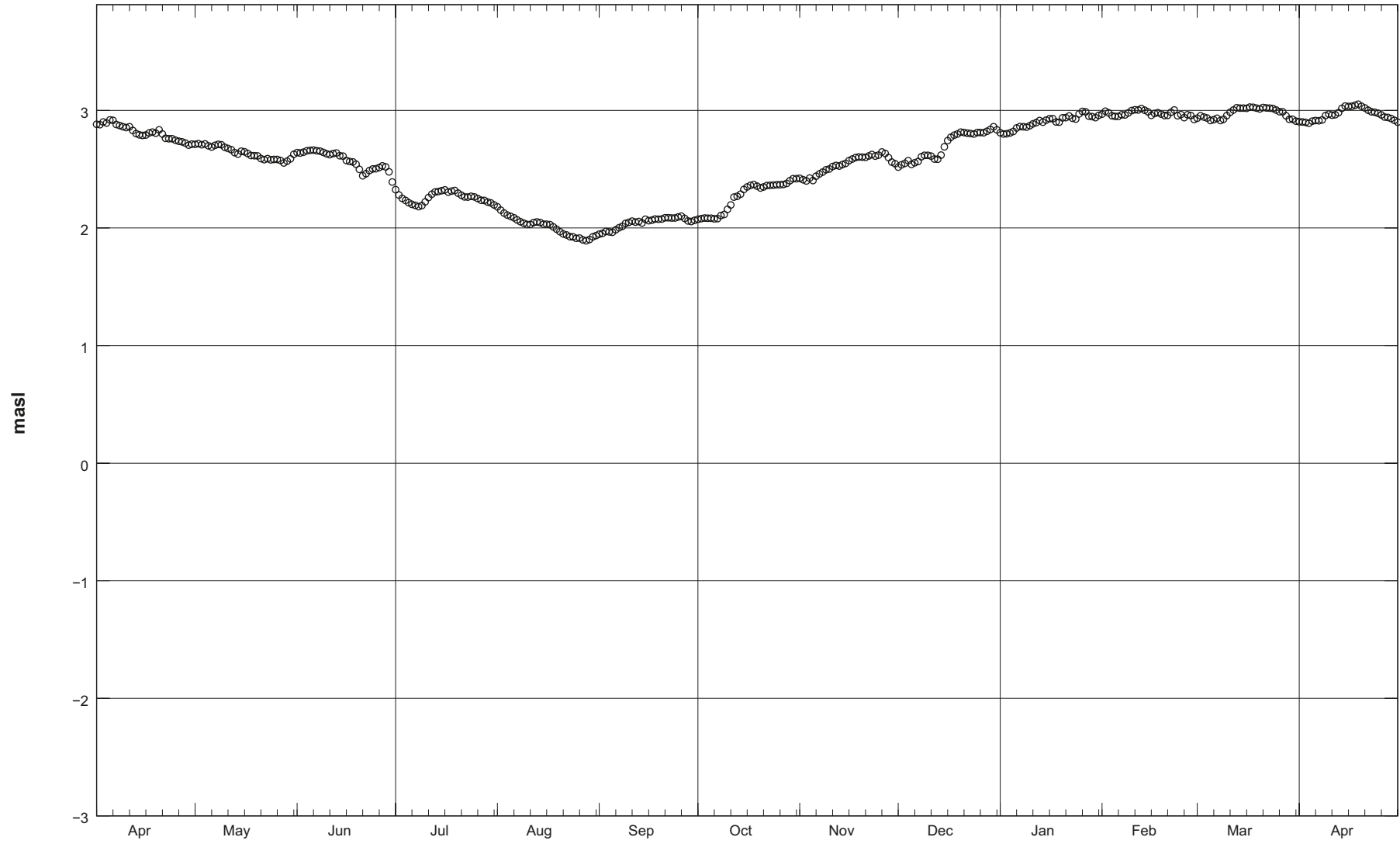
Start: 2007-04-01 month

HFM08



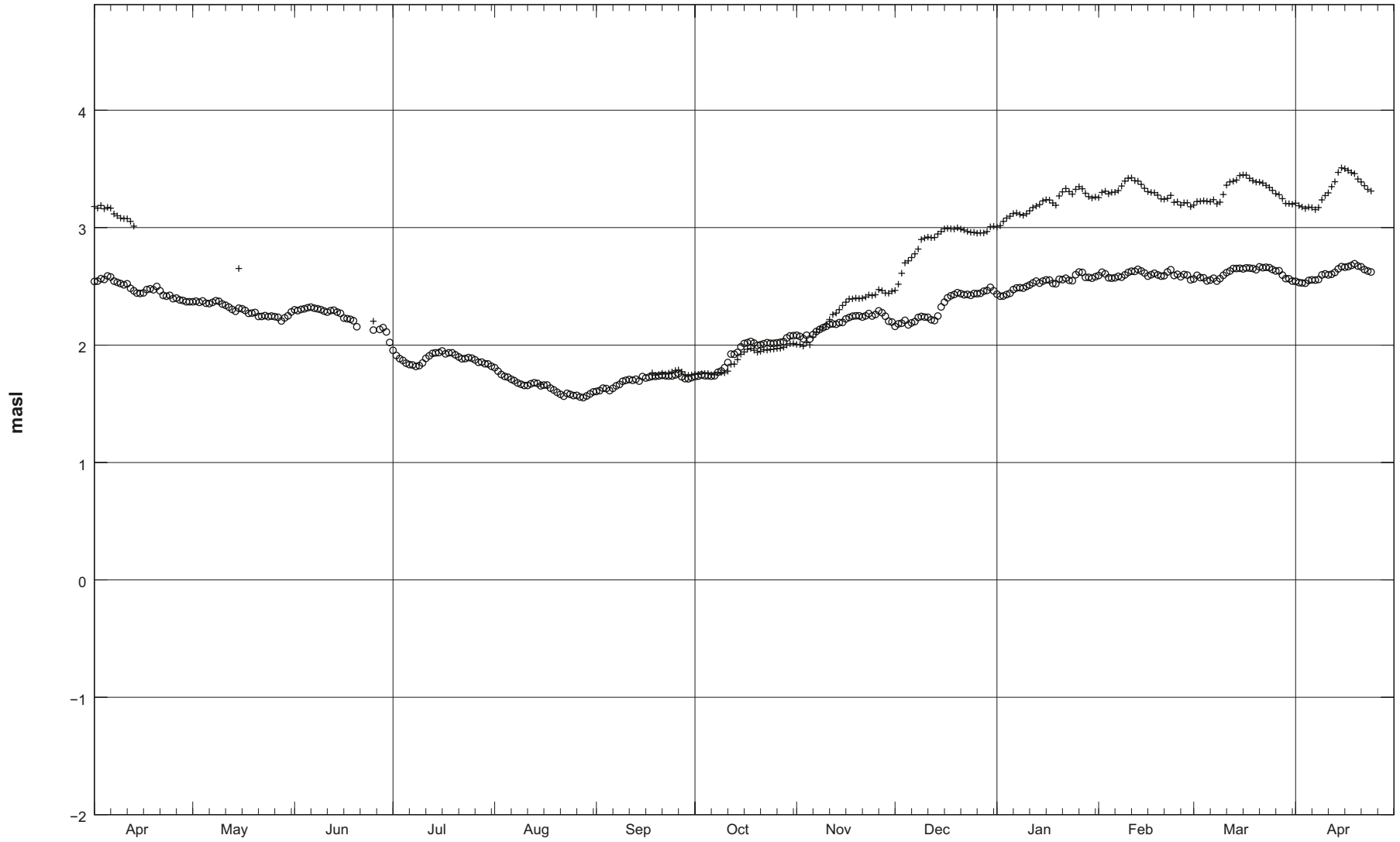
Start: 2007-04-01 month

HFM09



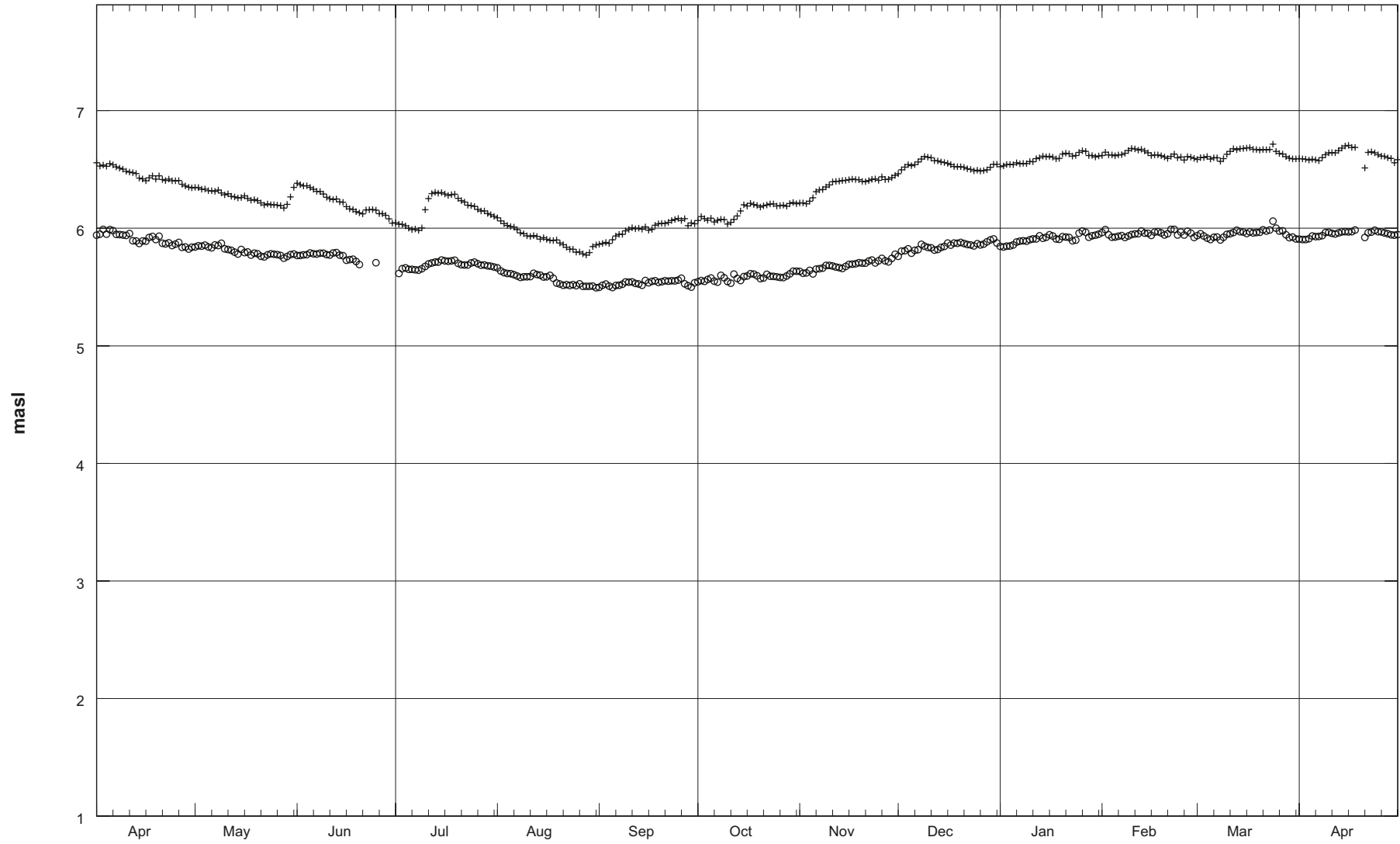
Start: 2007-04-01 month

HFM10



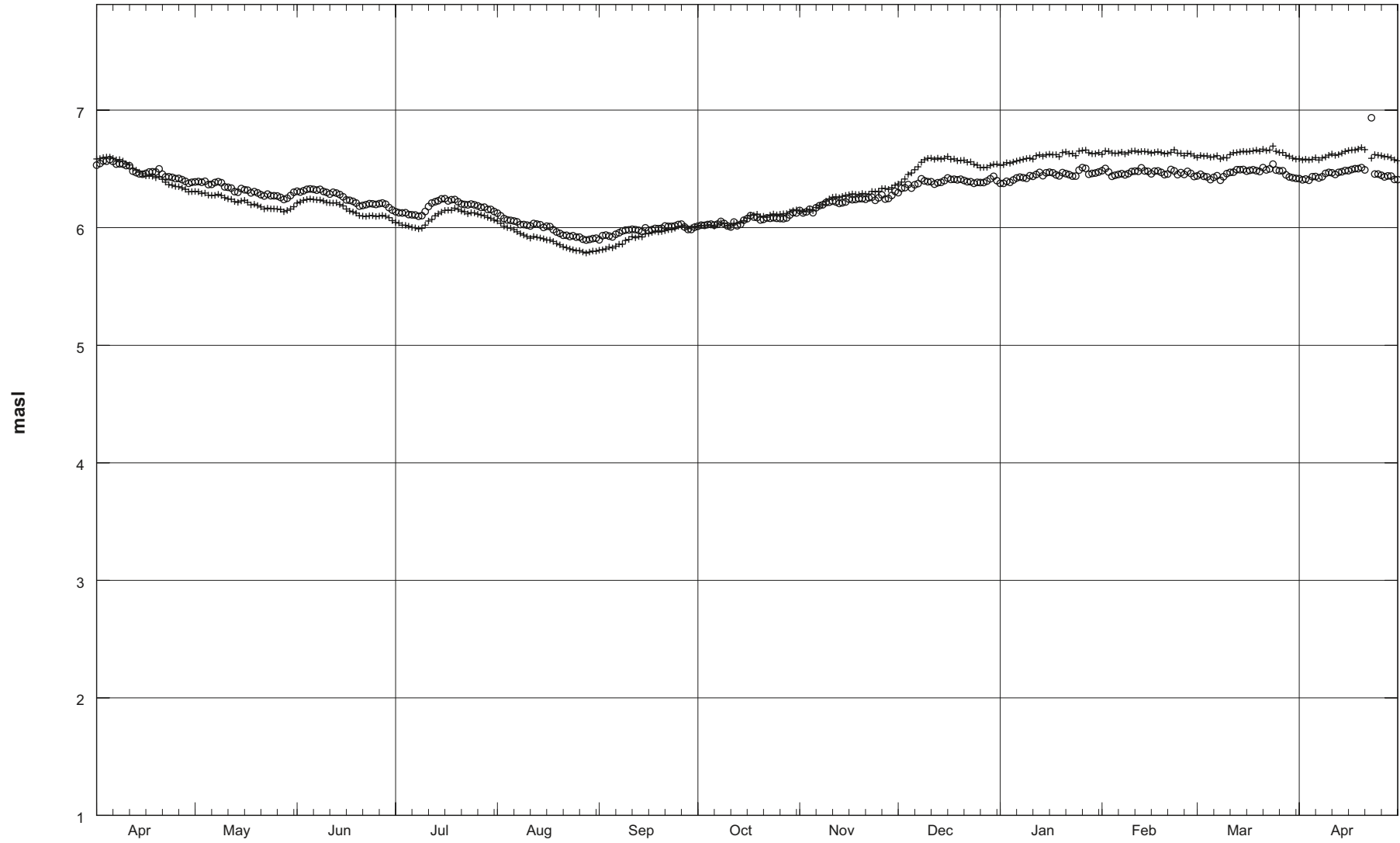
Start: 2007-04-01 month

HFM11



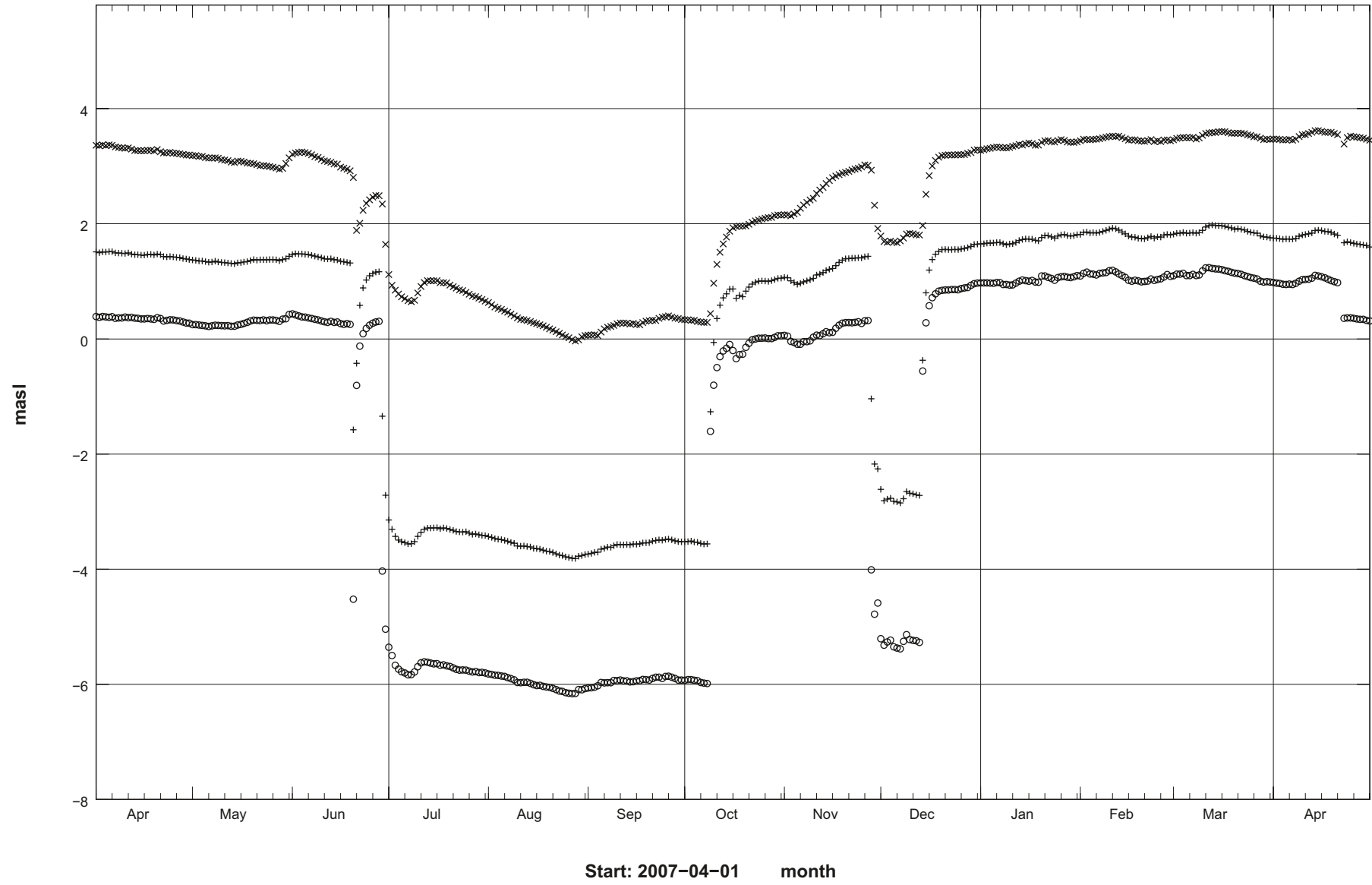
Start: 2007-04-01 month

HFM12

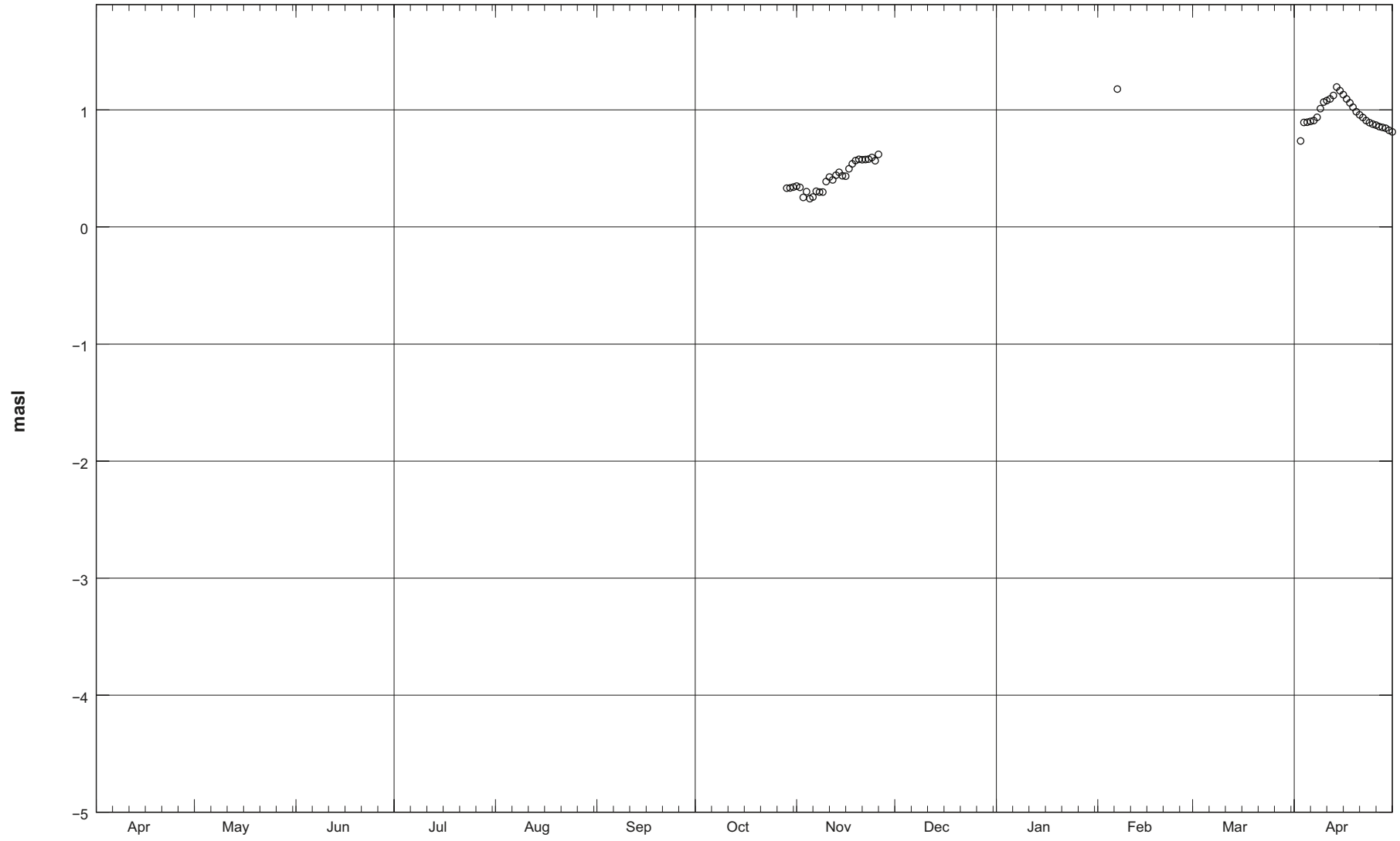


Start: 2007-04-01 month

HFM13

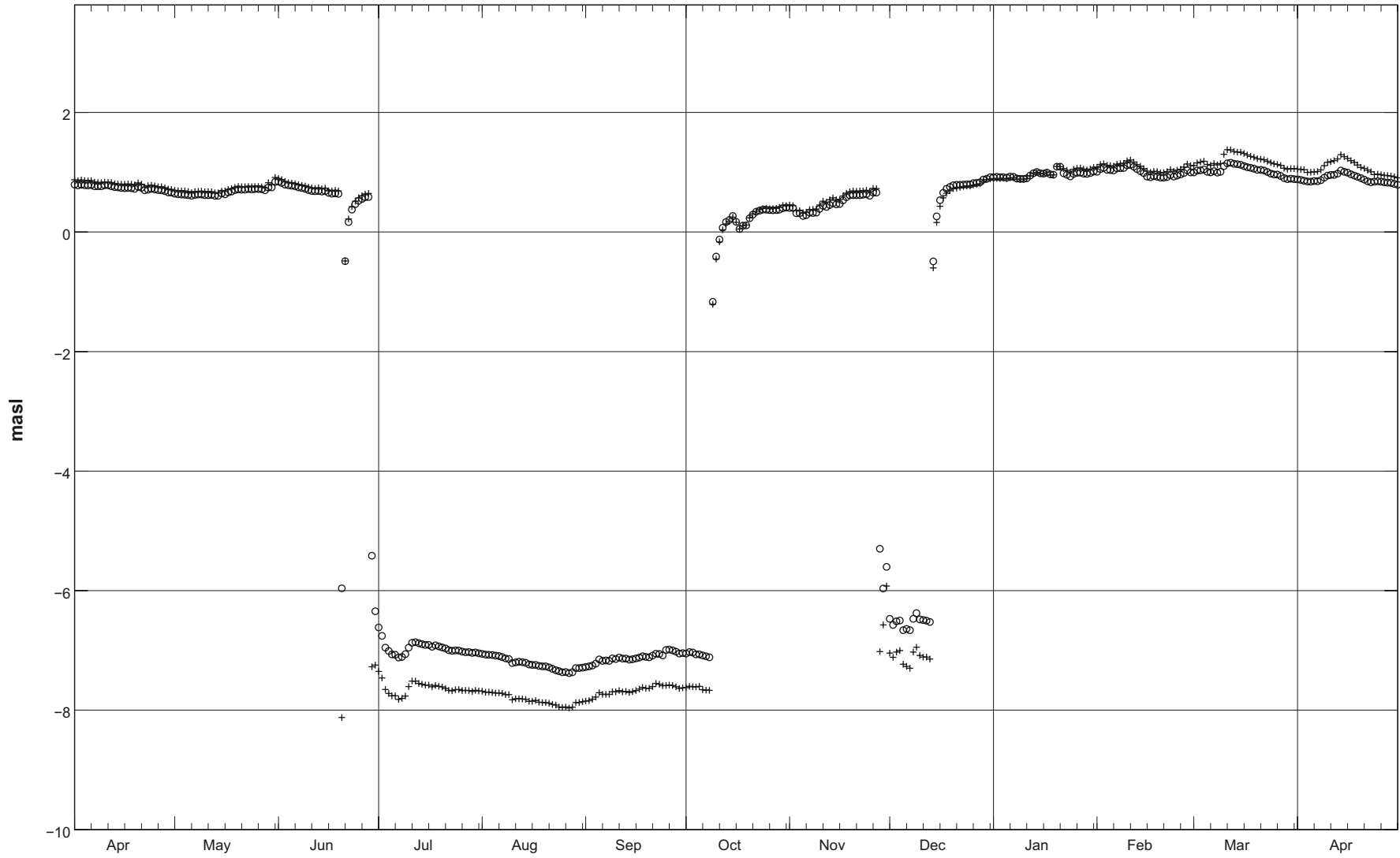


HFM14



Start: 2007-04-01 month

HFM15

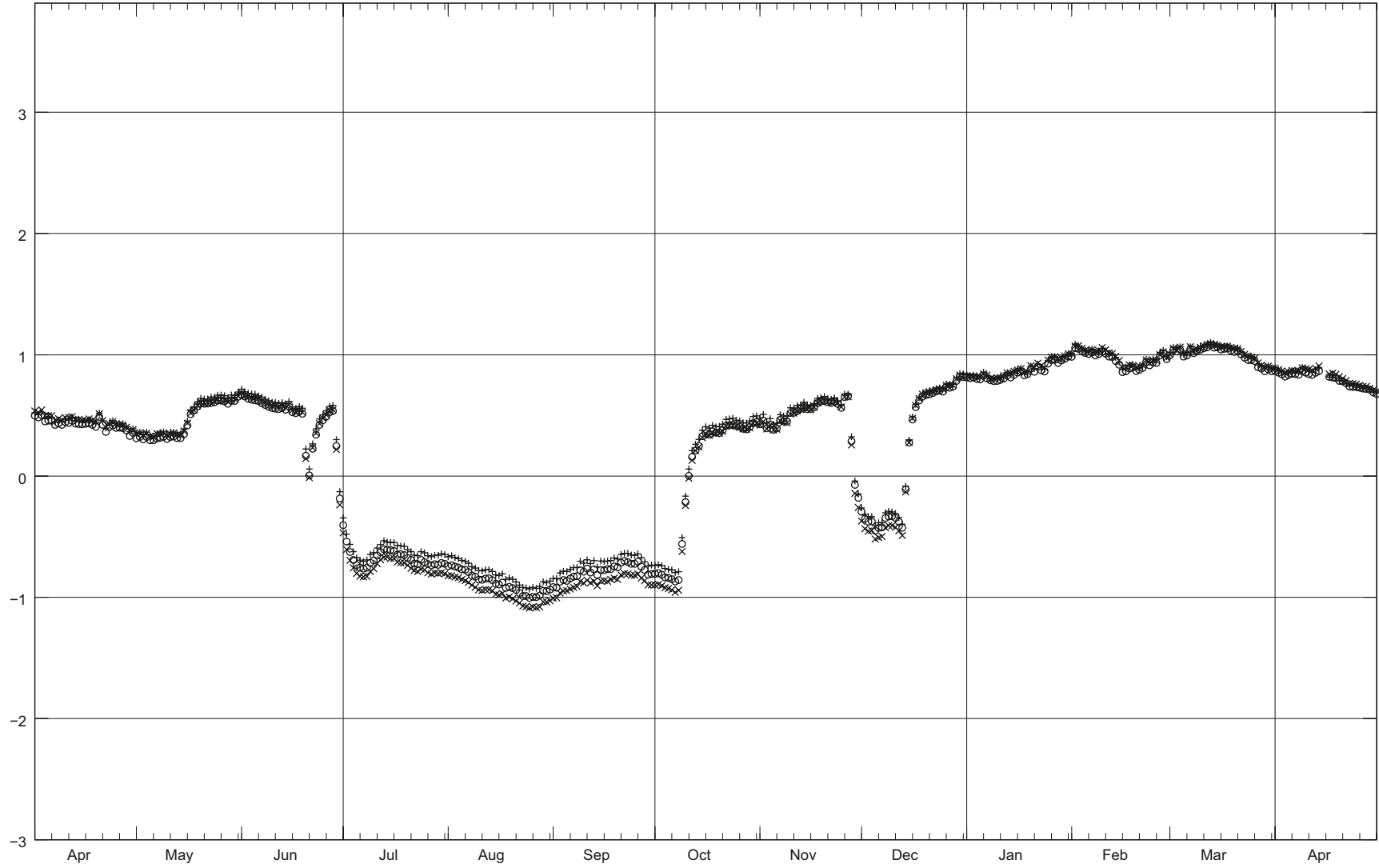


Start: 2007-04-01 month

HFM16

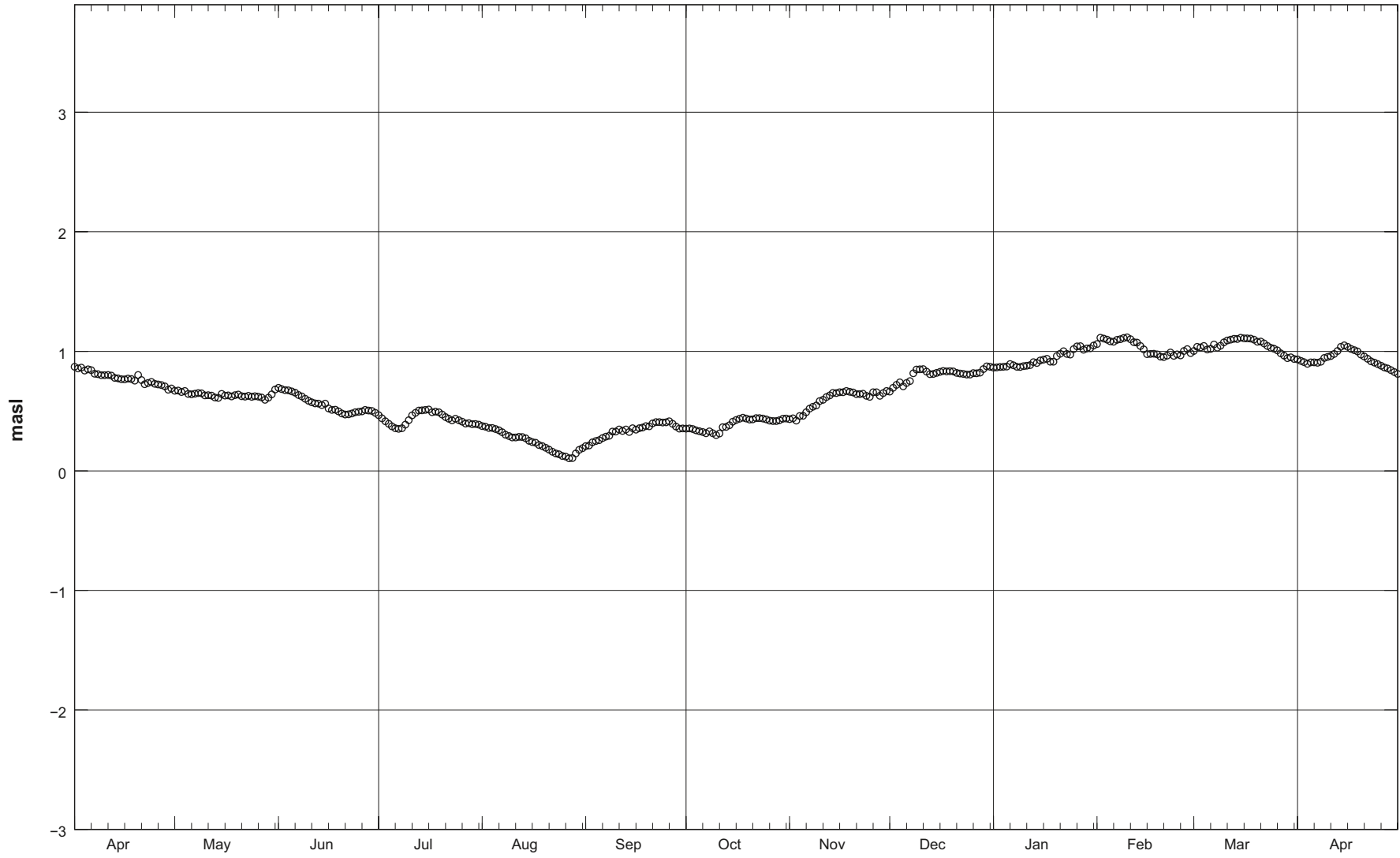
47

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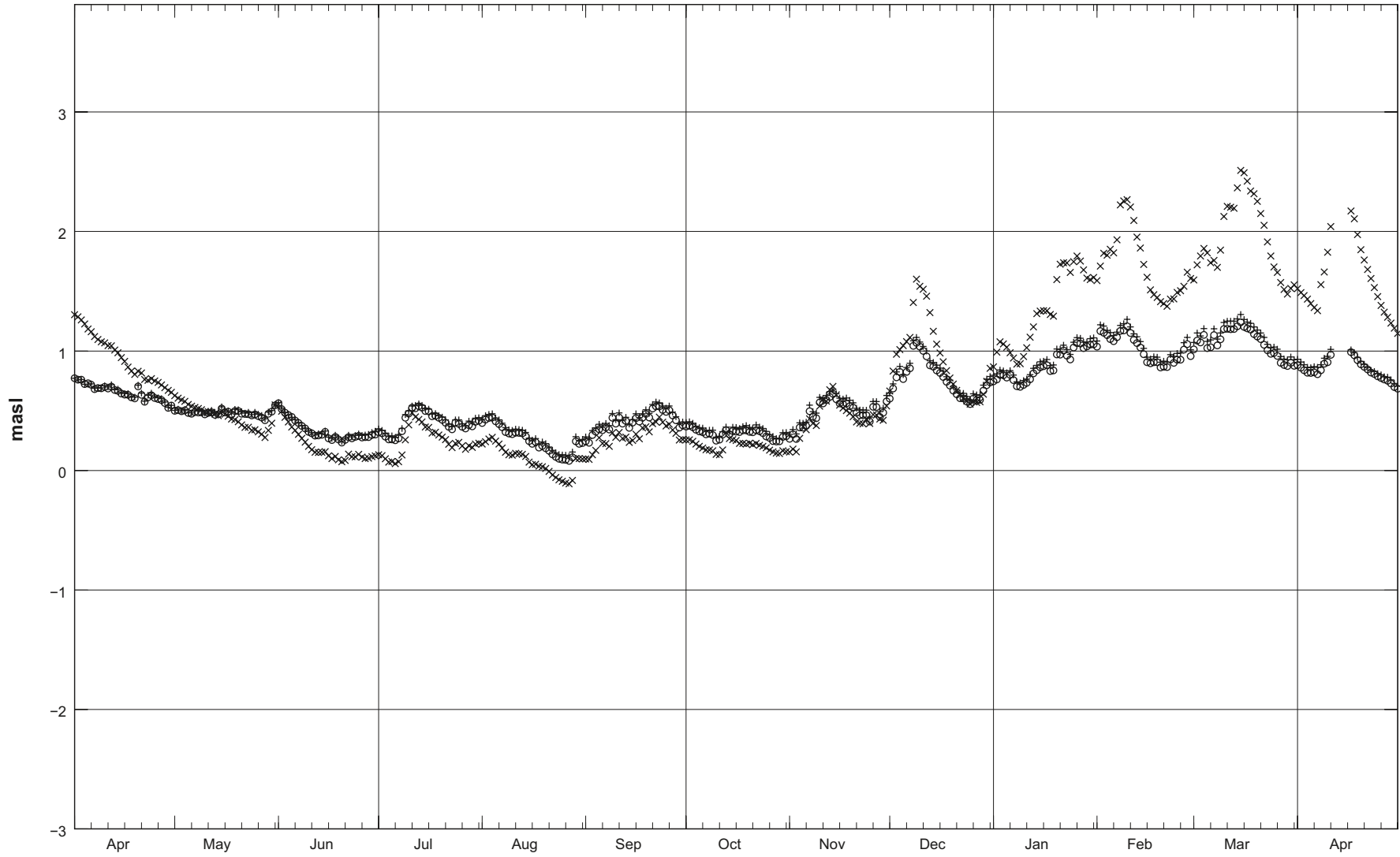
Start: 2007-04-01 month

HFM17



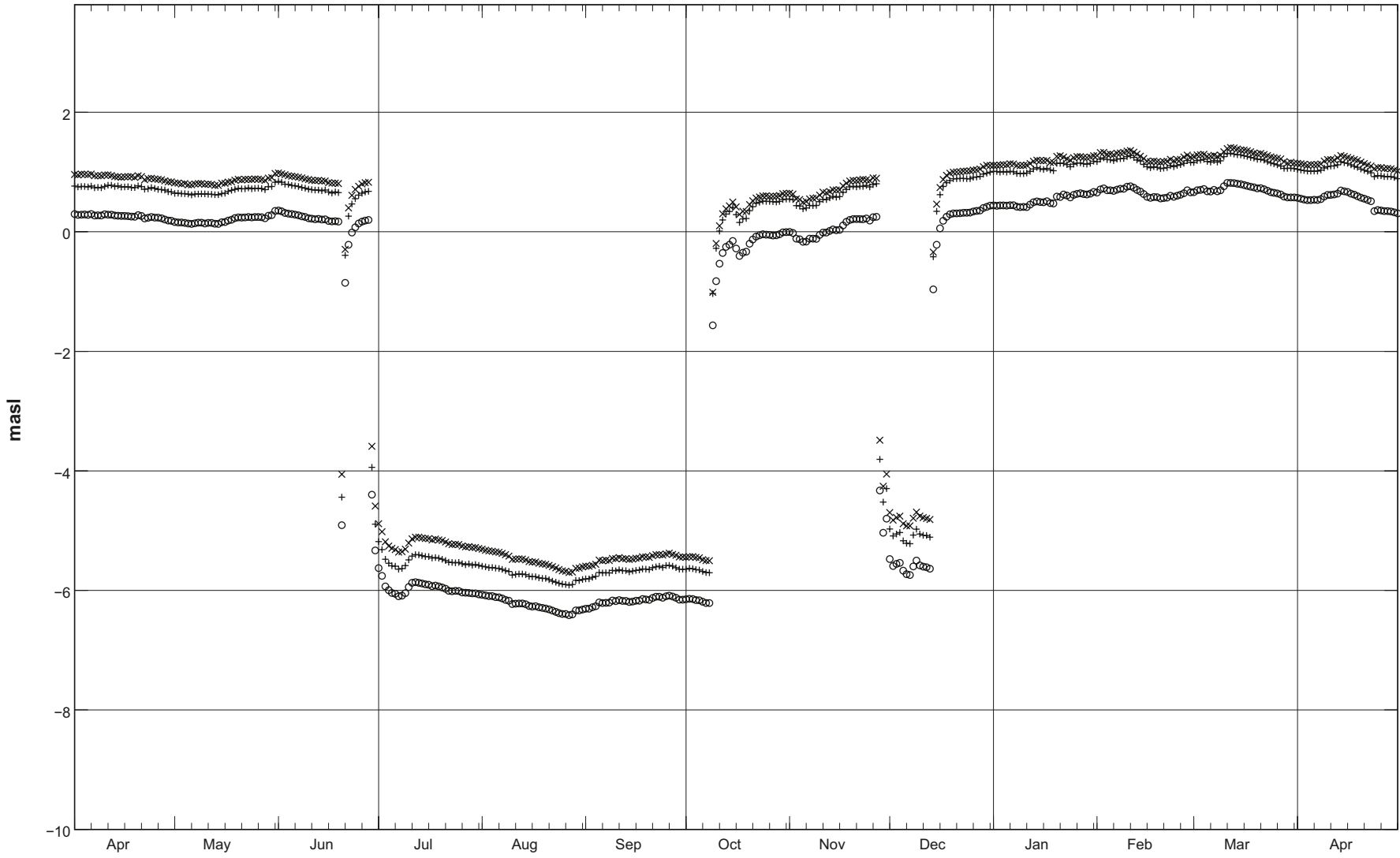
Start: 2007-04-01 month

HFM18



Start: 2007-04-01 month

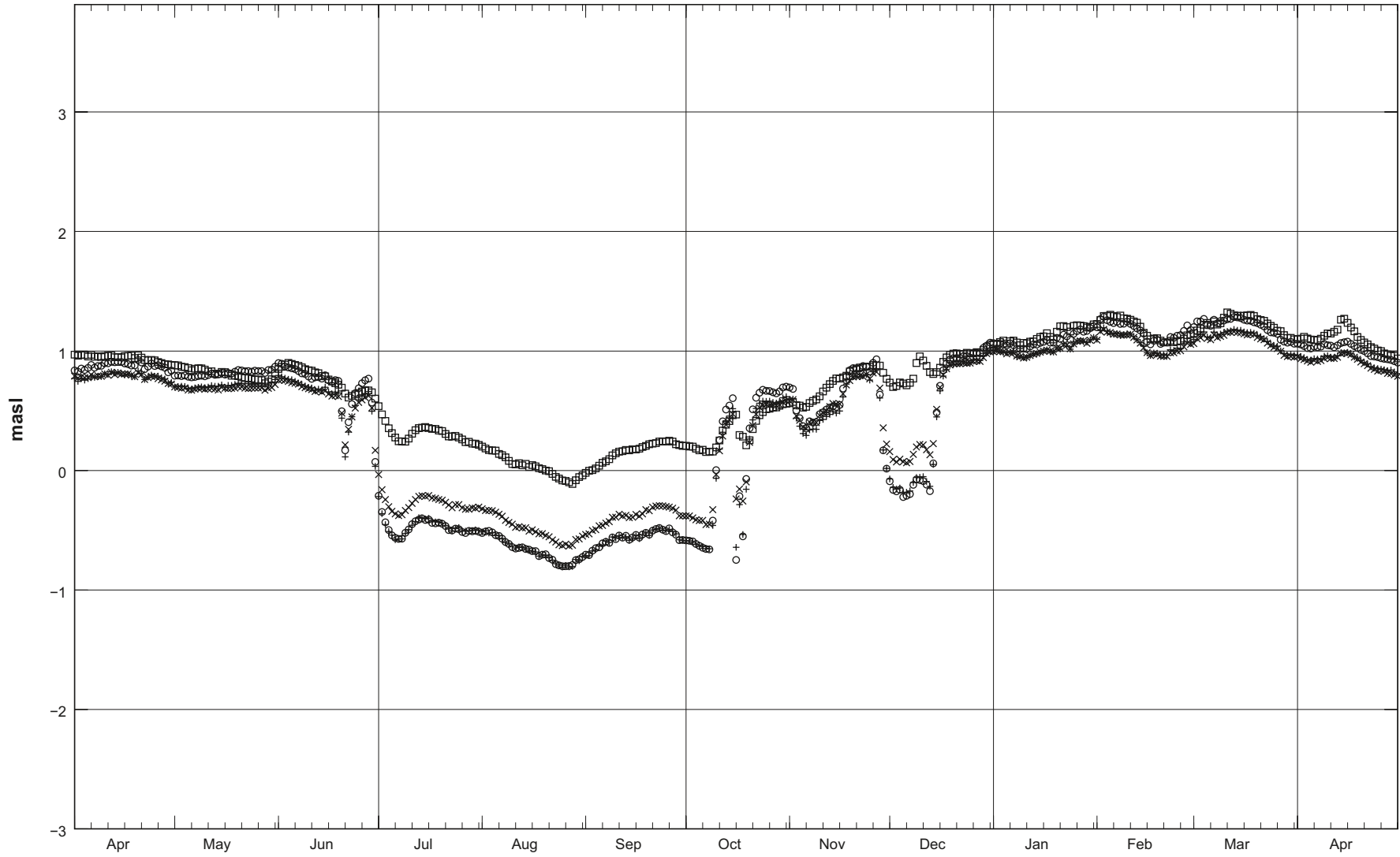
HFM19



Start: 2007-04-01 month

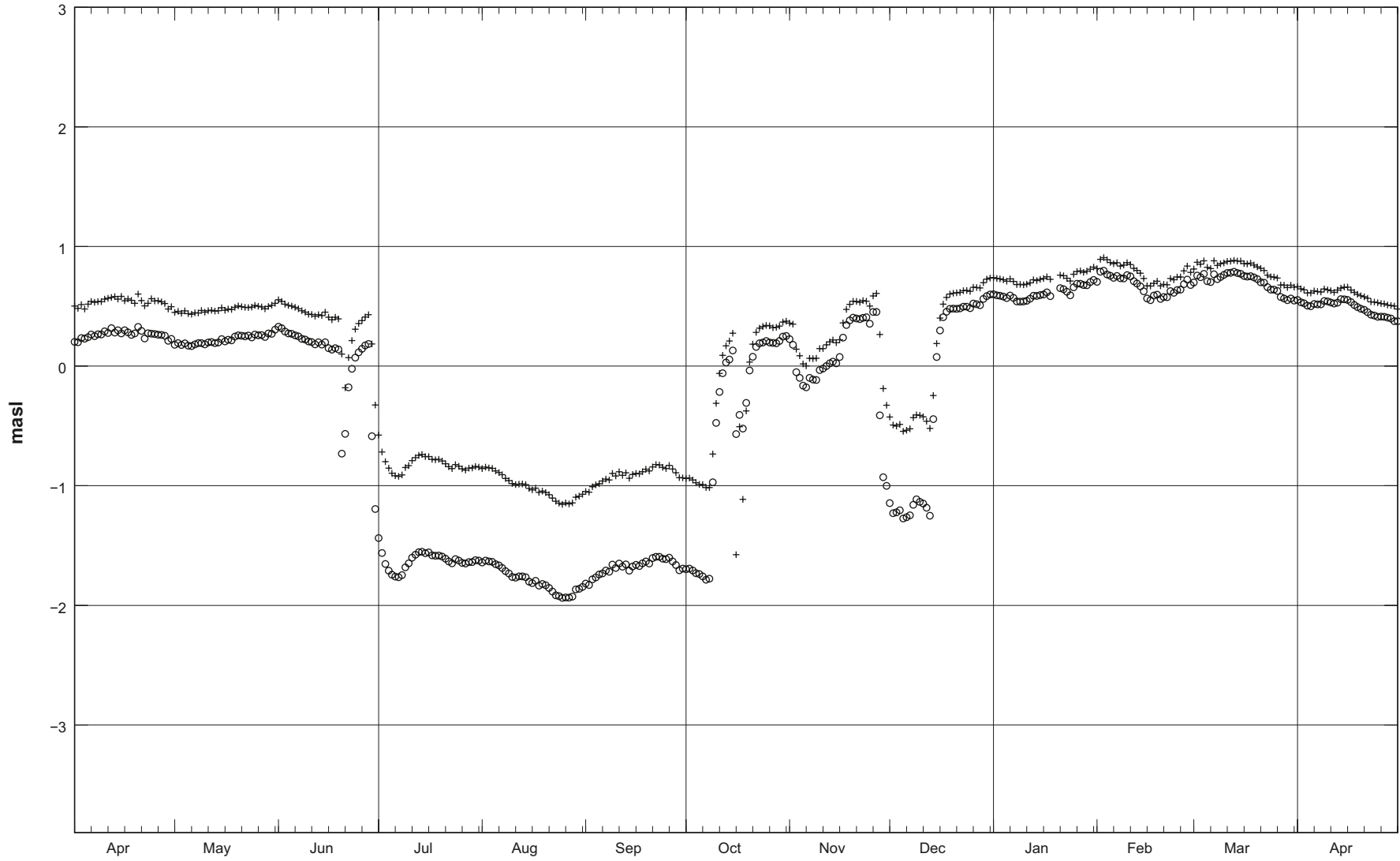
HFM20

51



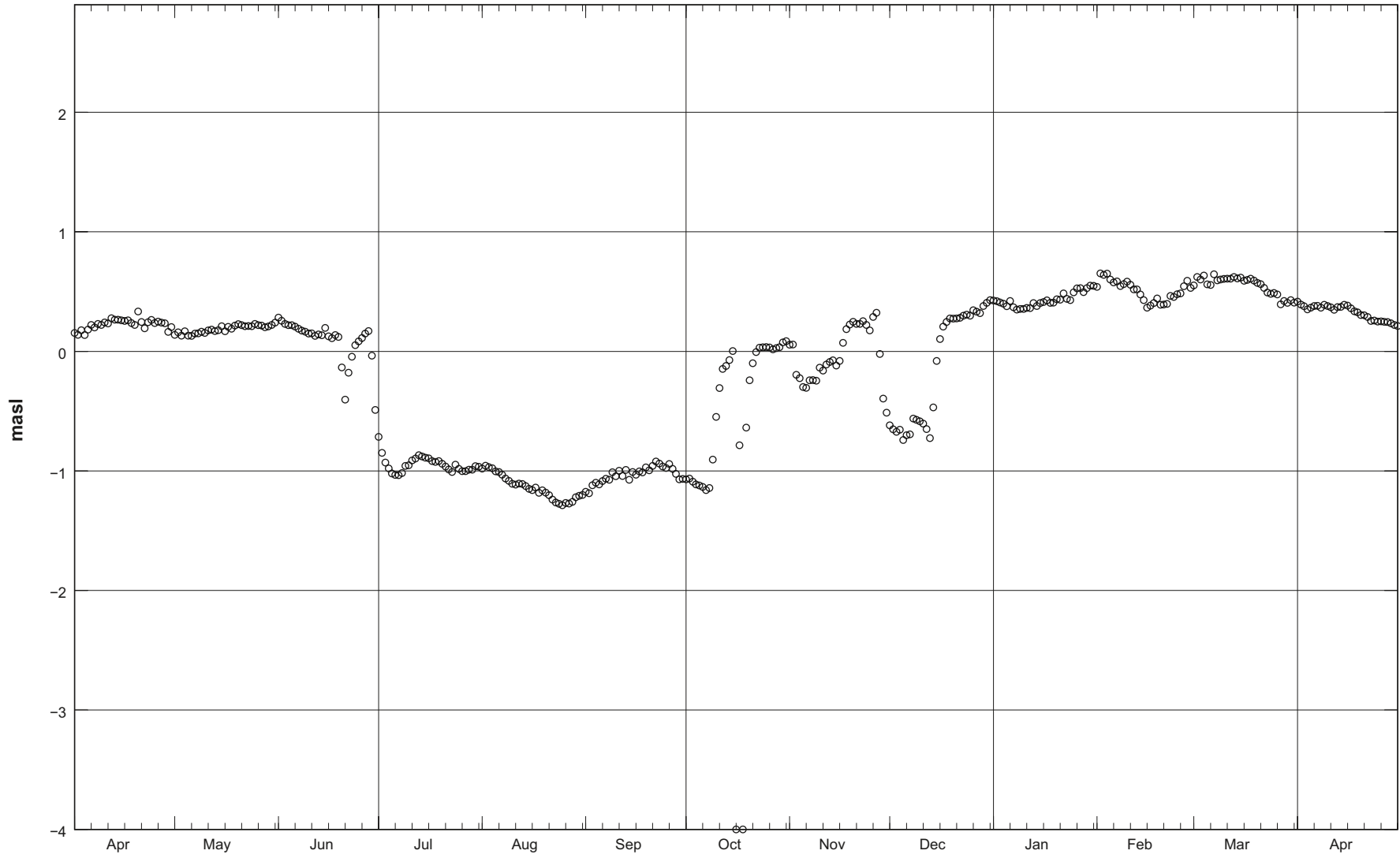
Start: 2007-04-01 month

HFM21

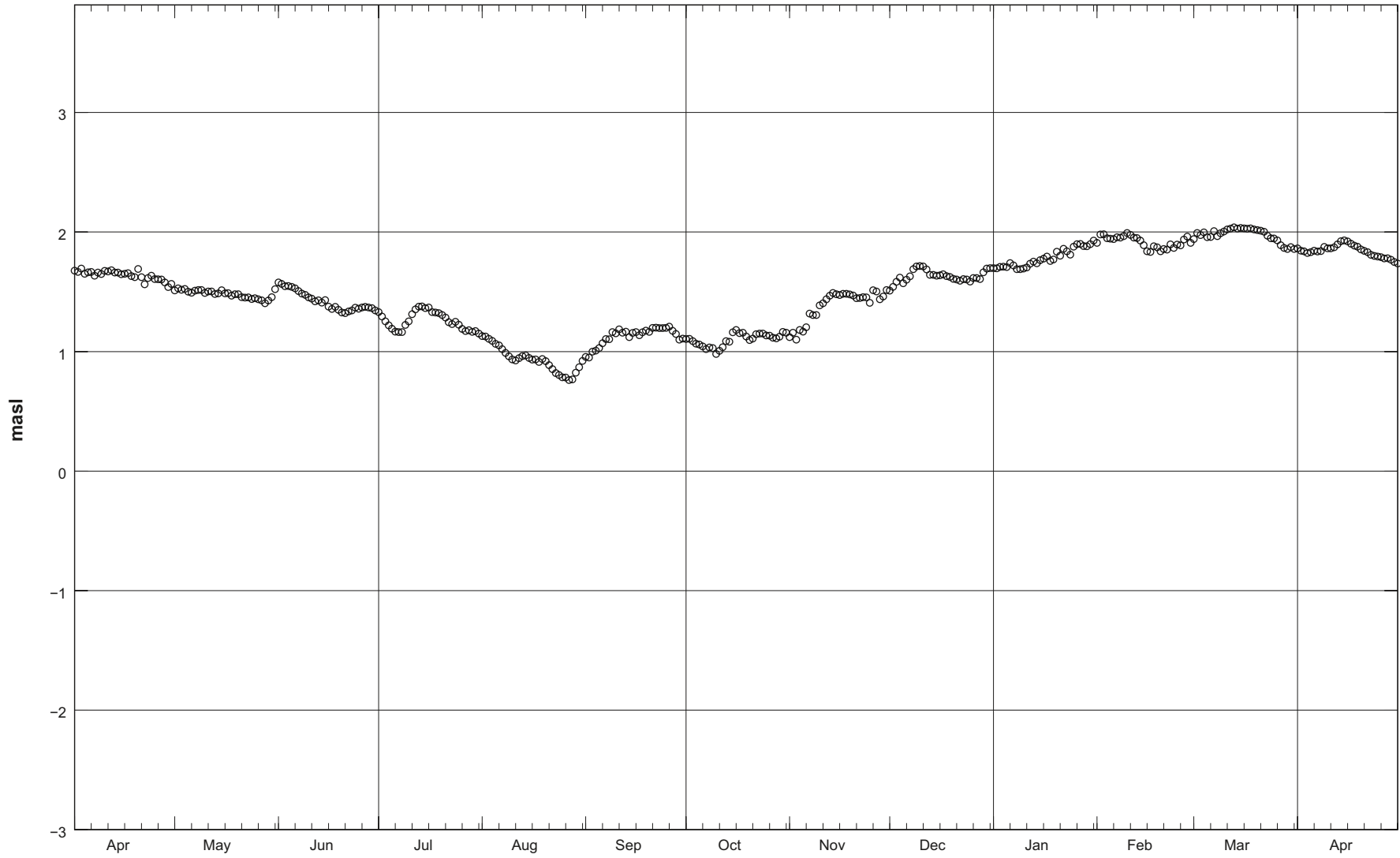


Start: 2007-04-01 month

HFM22

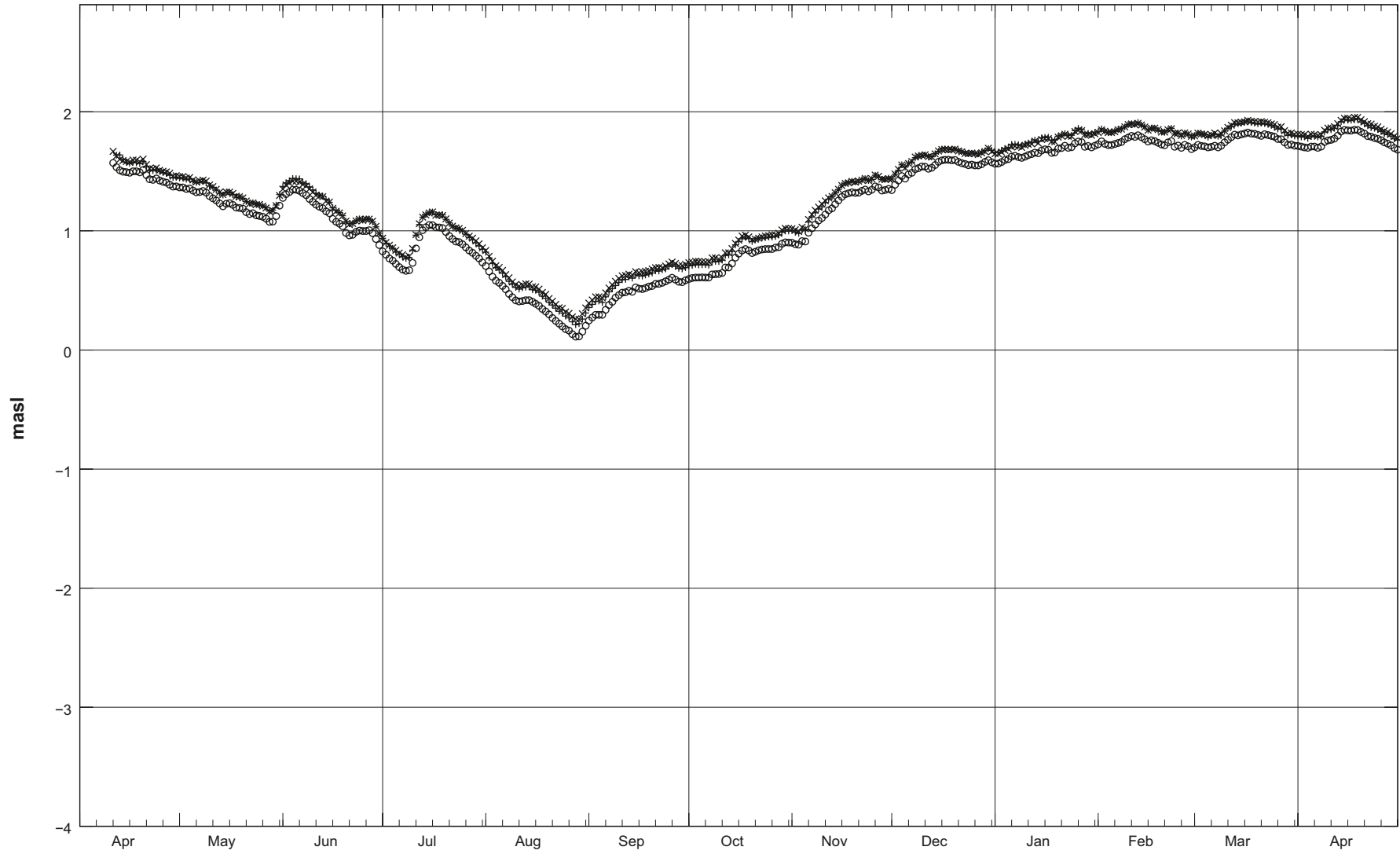


HFM23

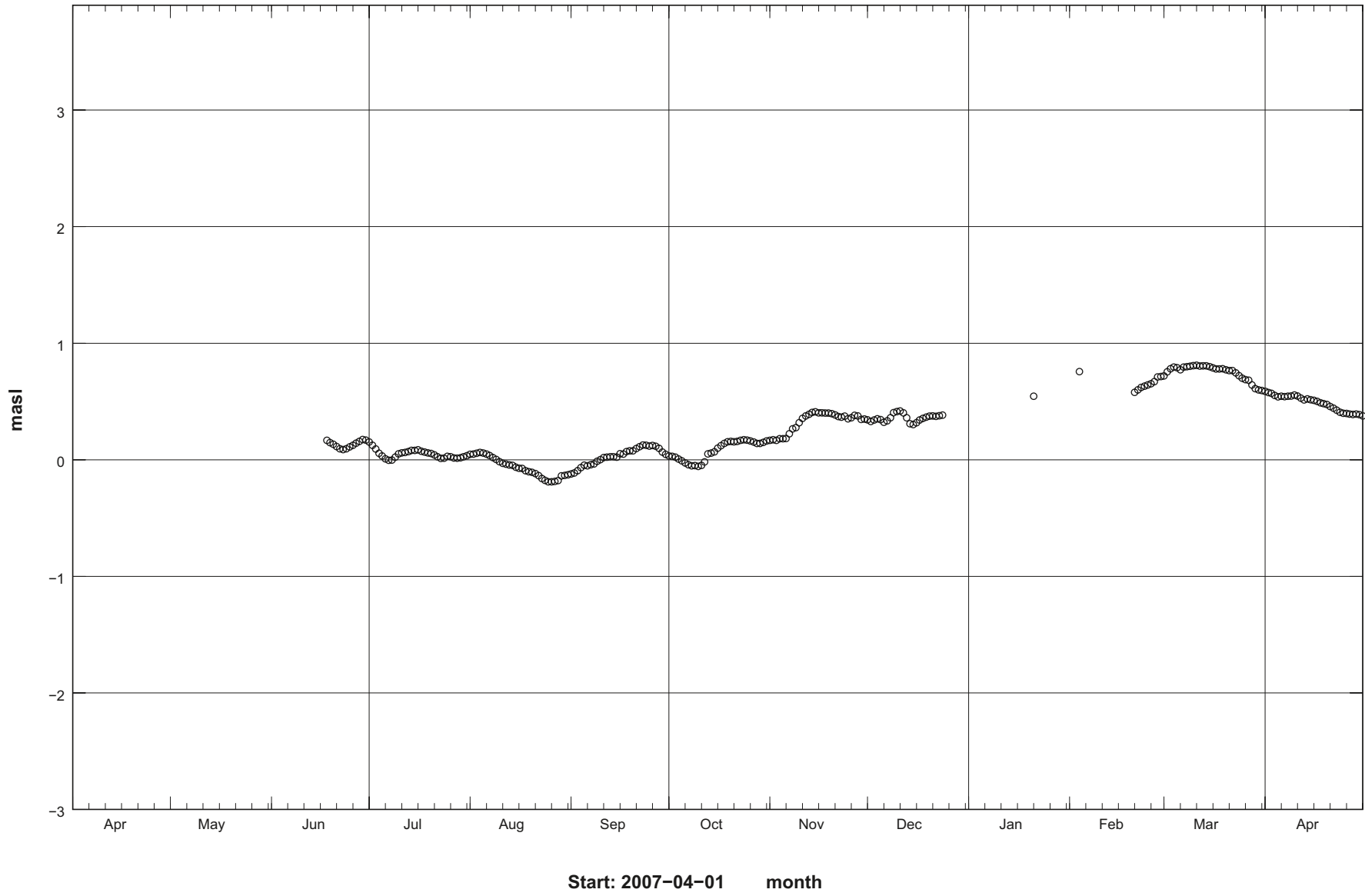


Start: 2007-04-01 month

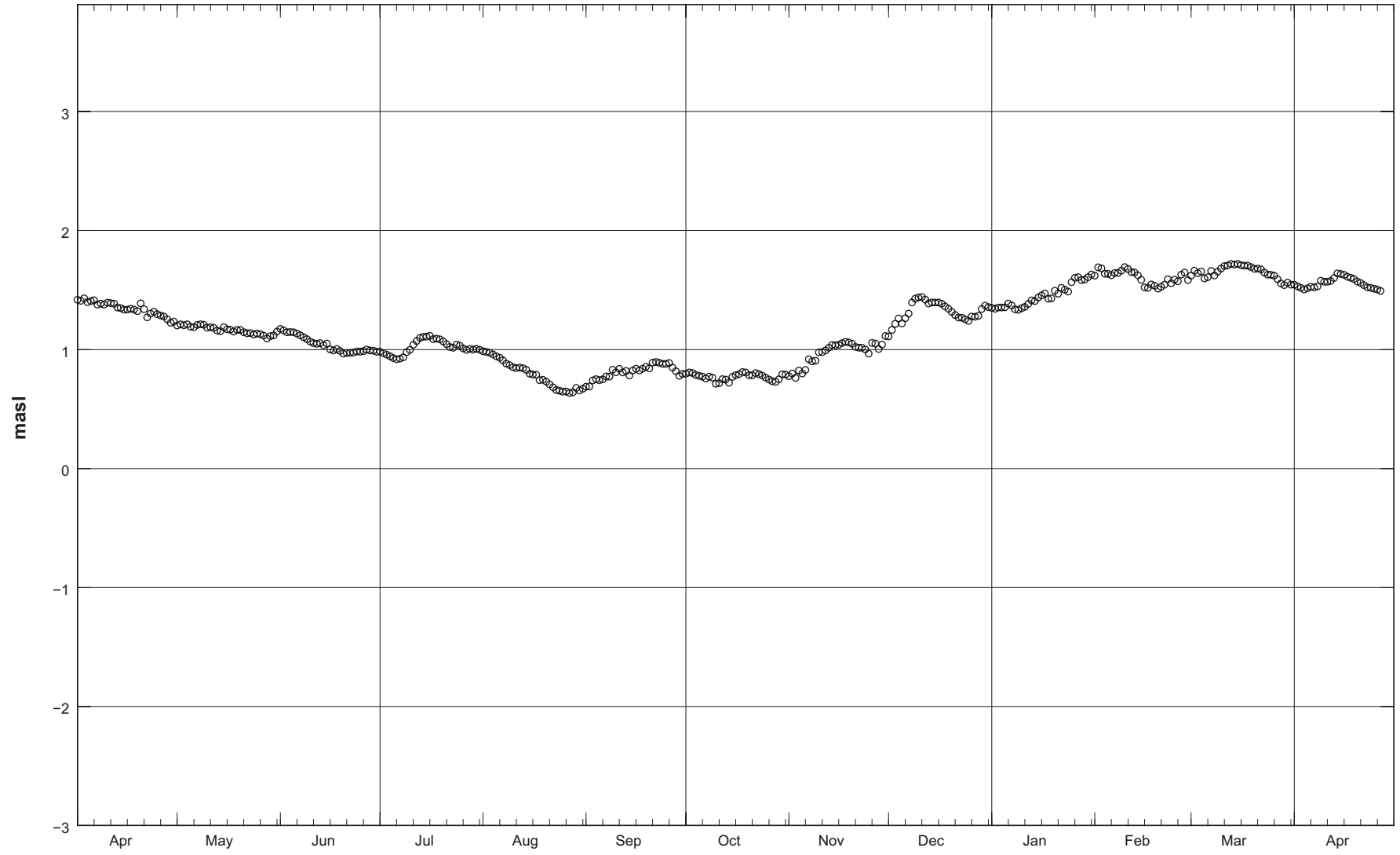
HFM24



HFM25



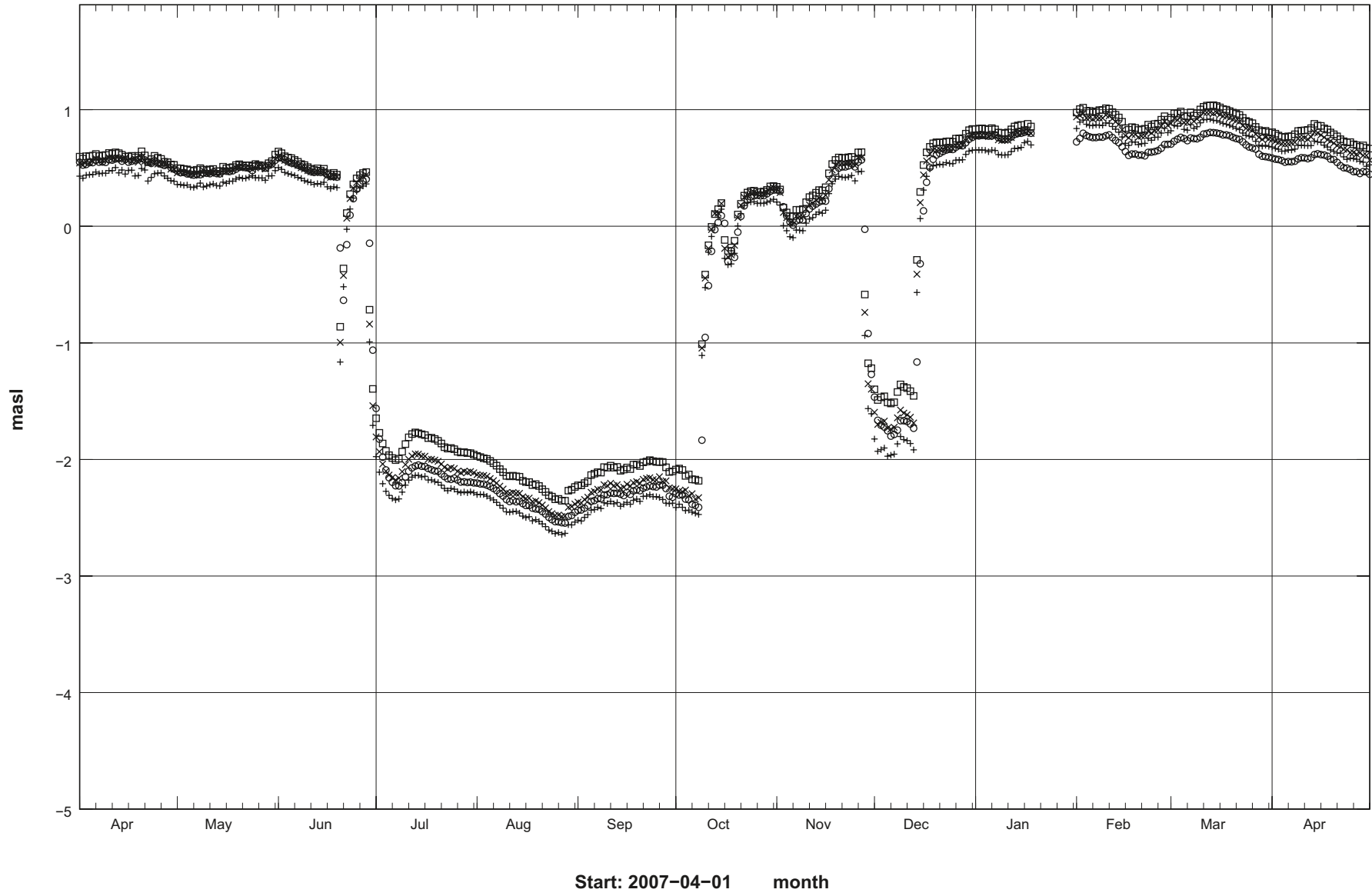
HFM26



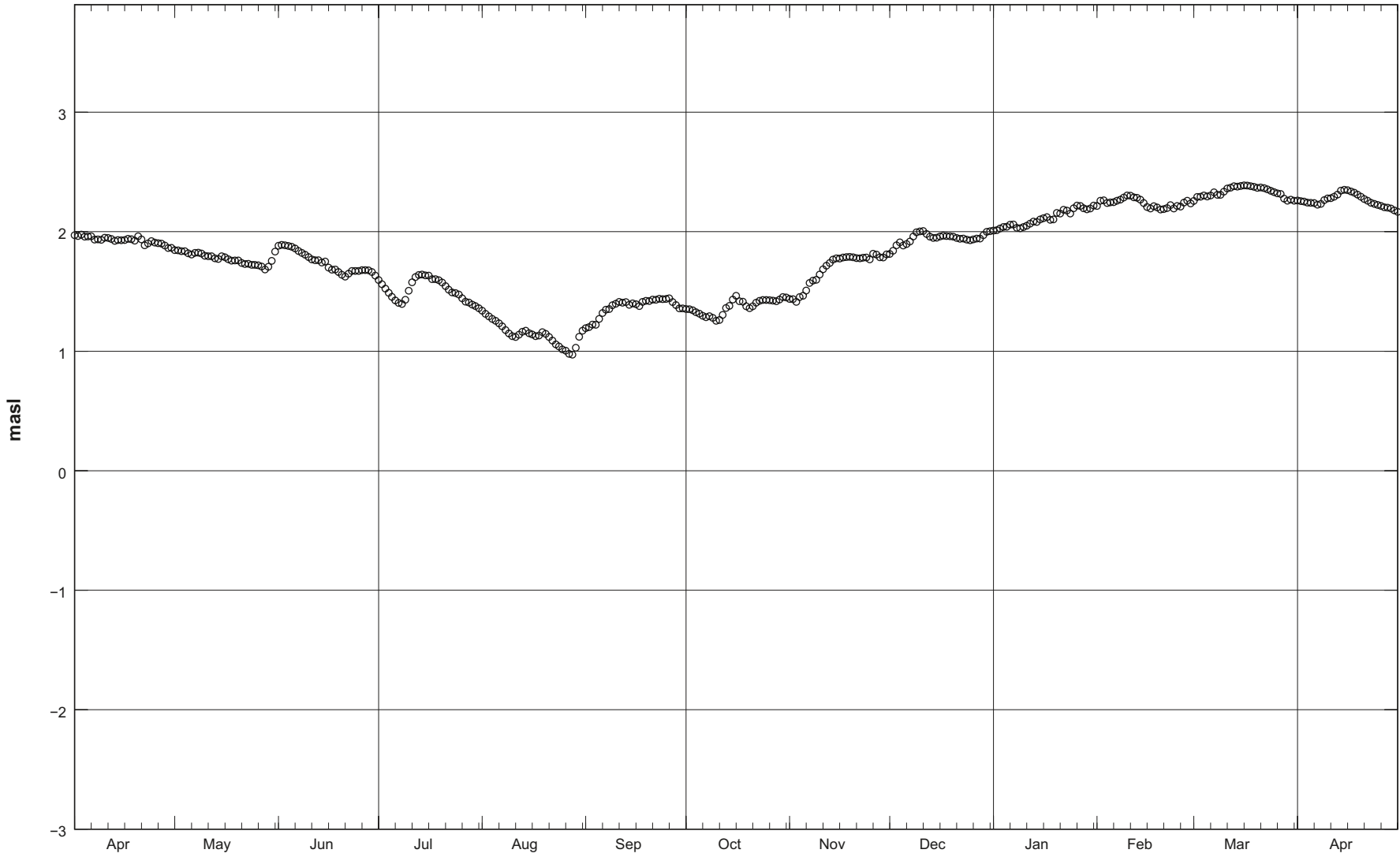
57

Start: 2007-04-01 month

HFM27

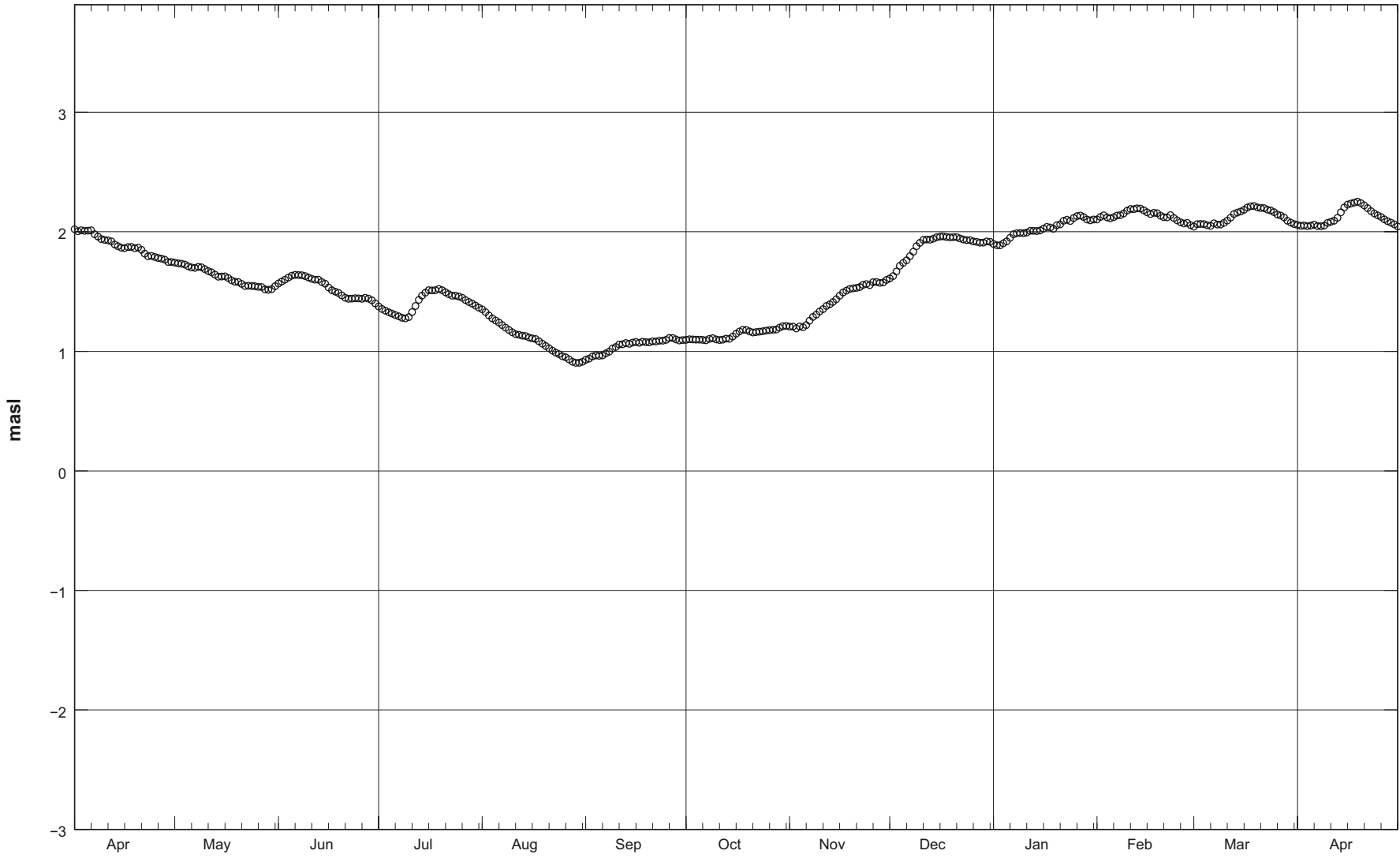


HFM28



Start: 2007-04-01 month

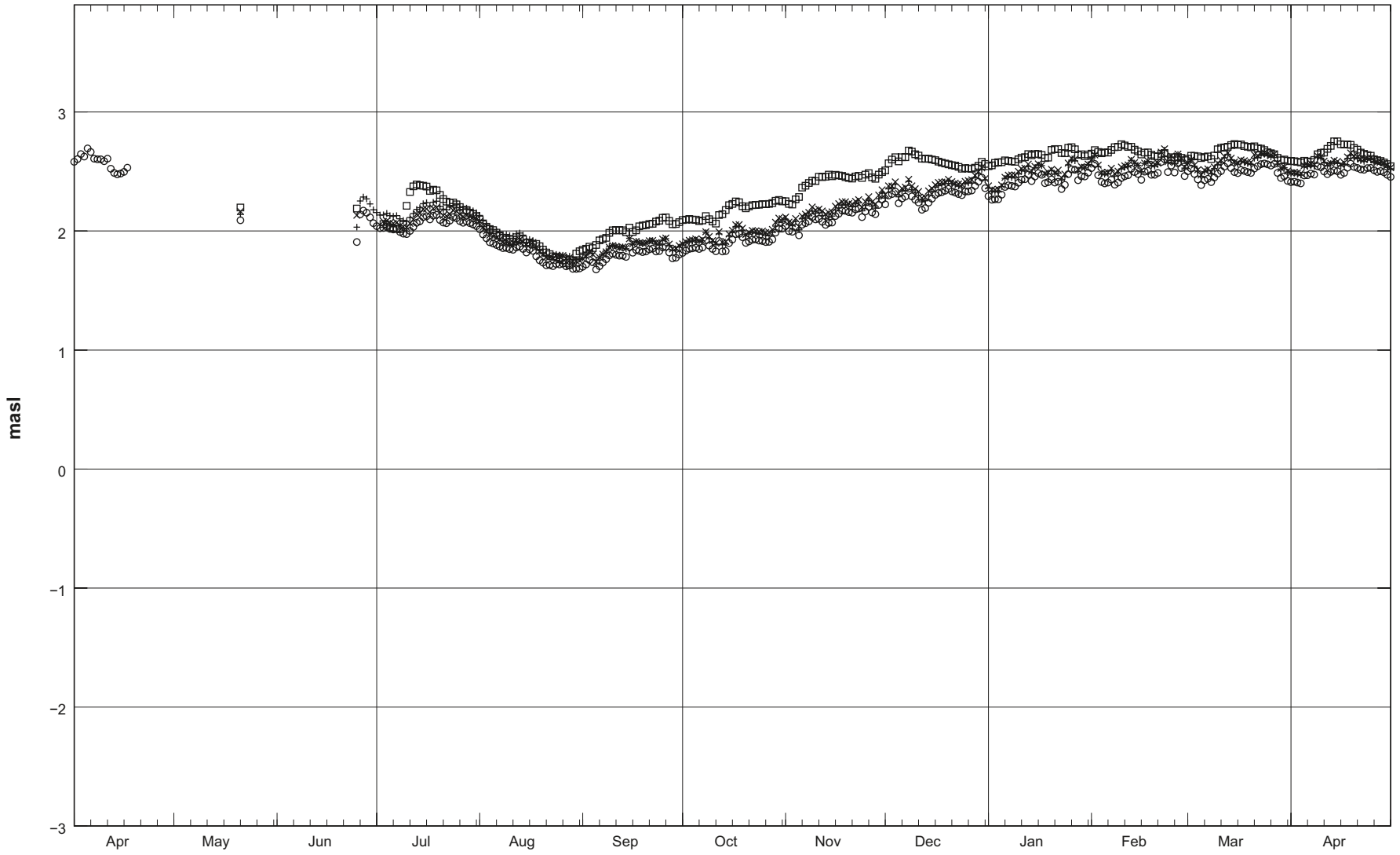
HFM29



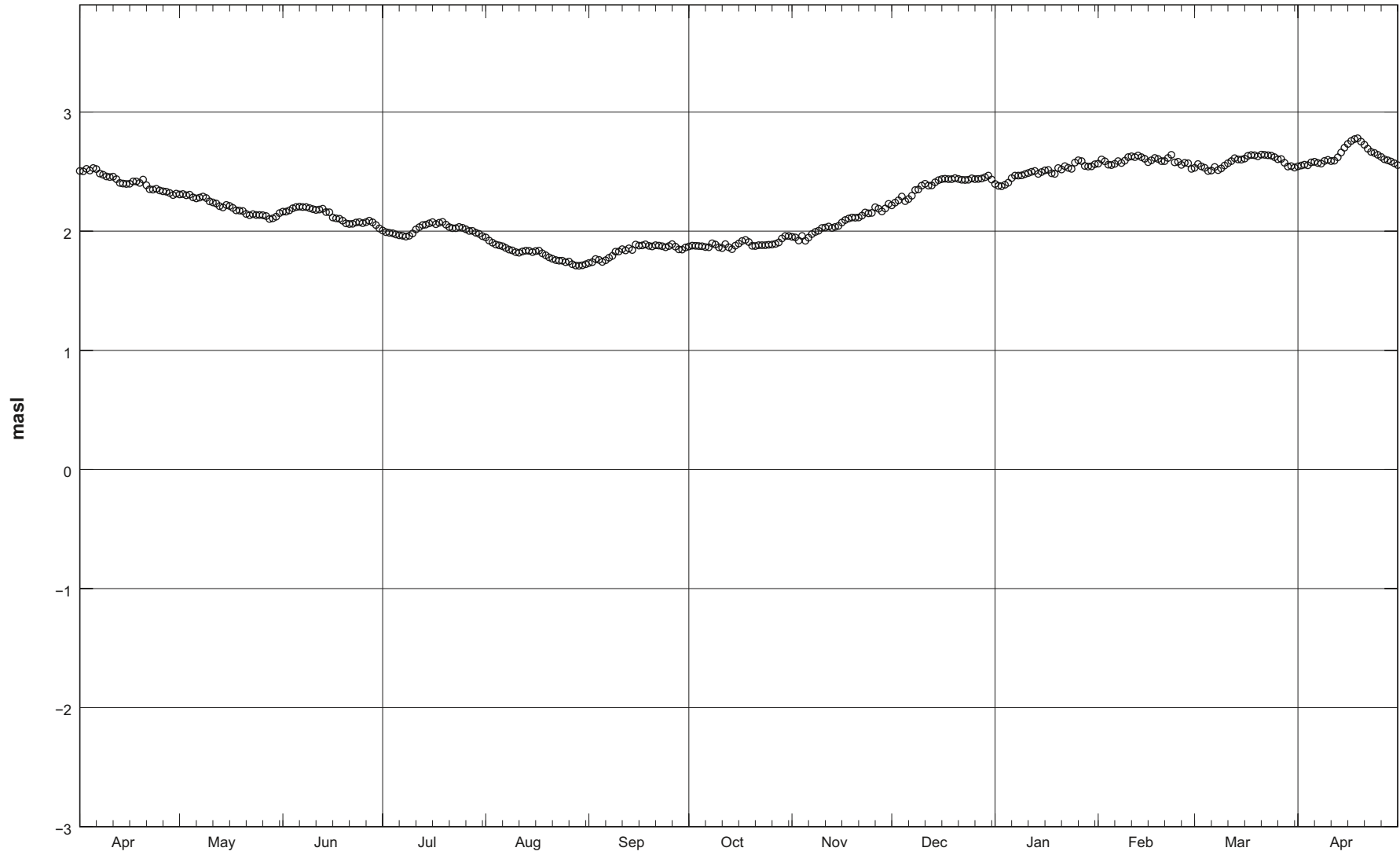
09

Start: 2007-04-01 month

HFM30

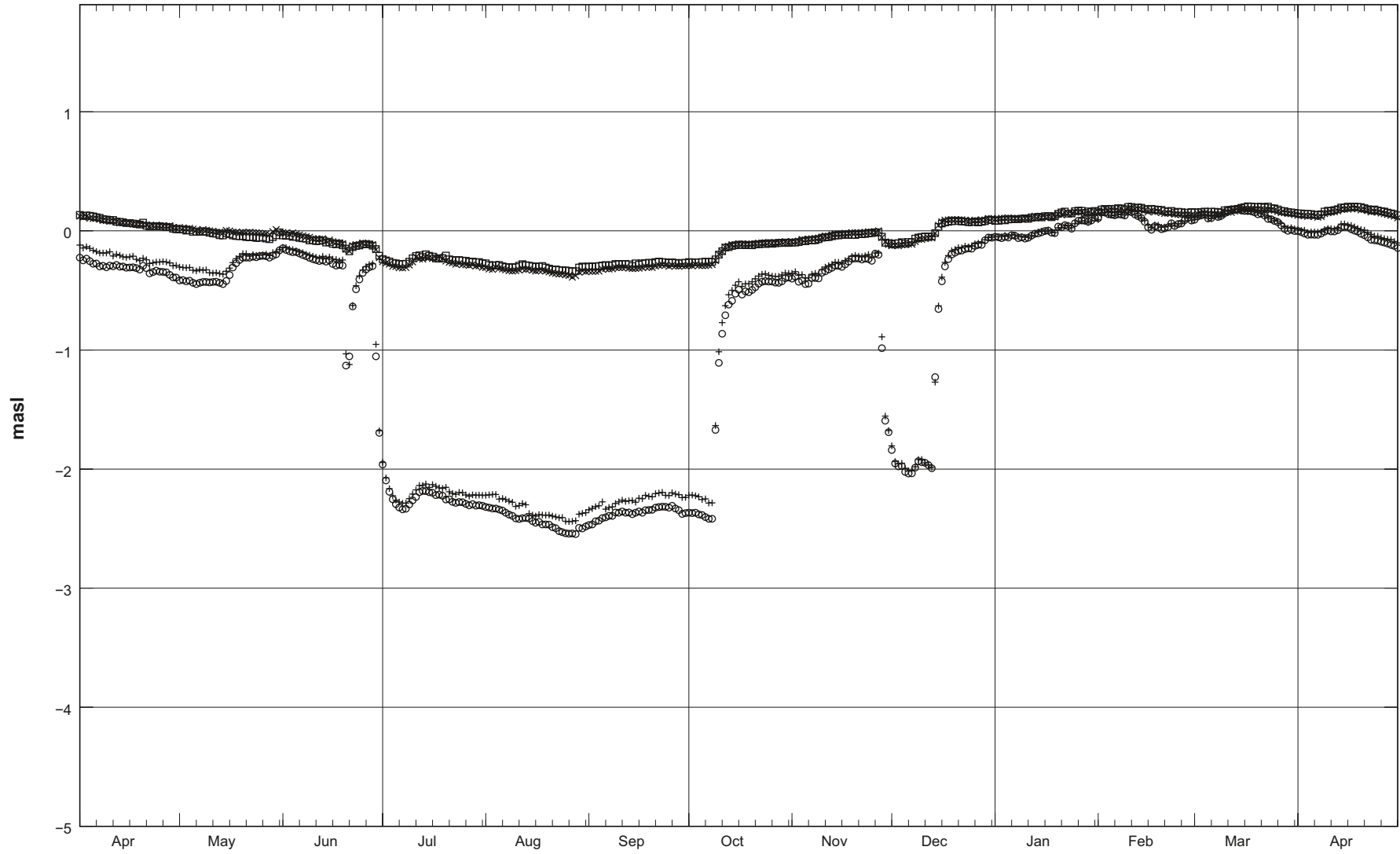


HFM31



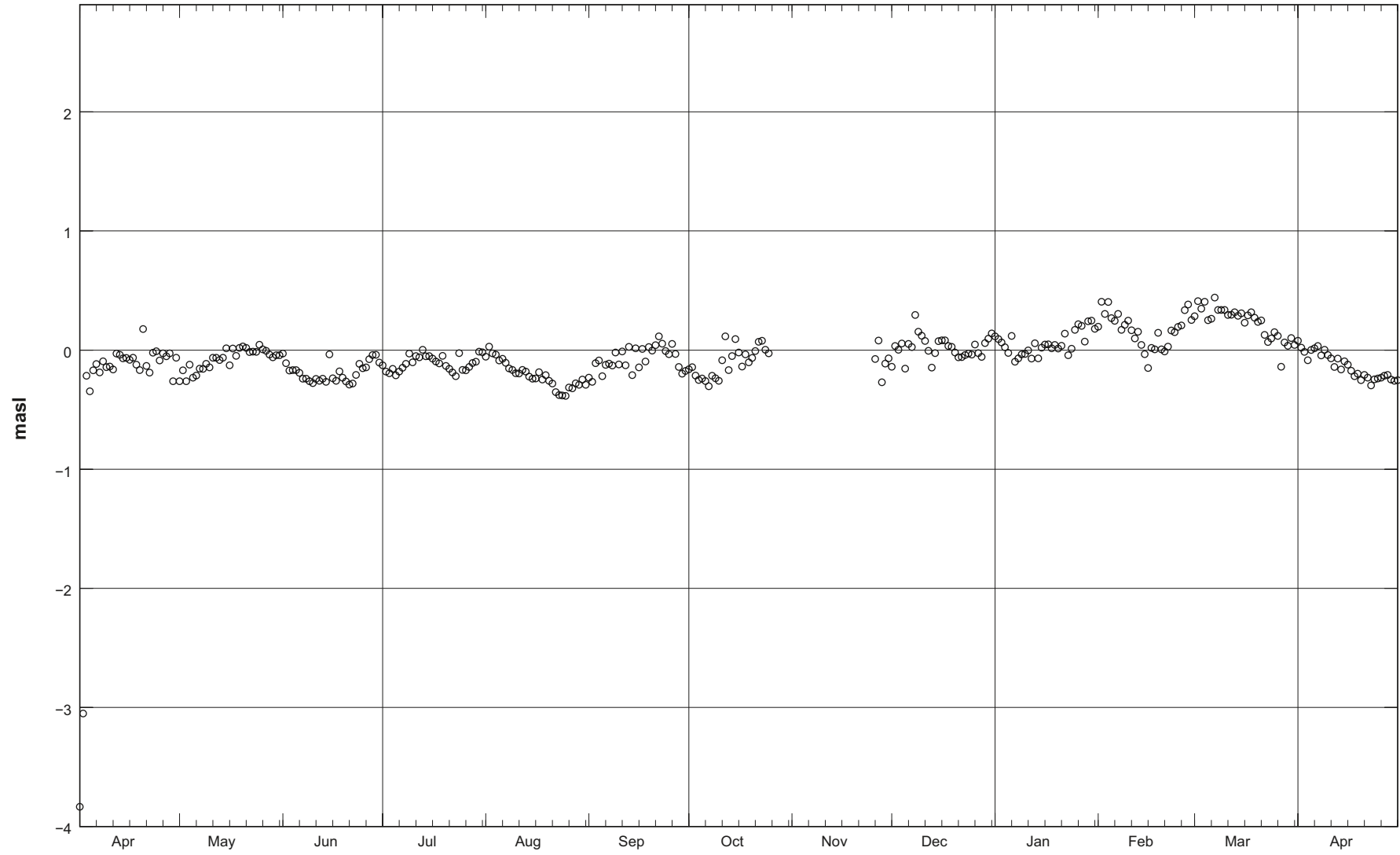
Start: 2007-04-01 month

HFM32



Start: 2007-04-01 month

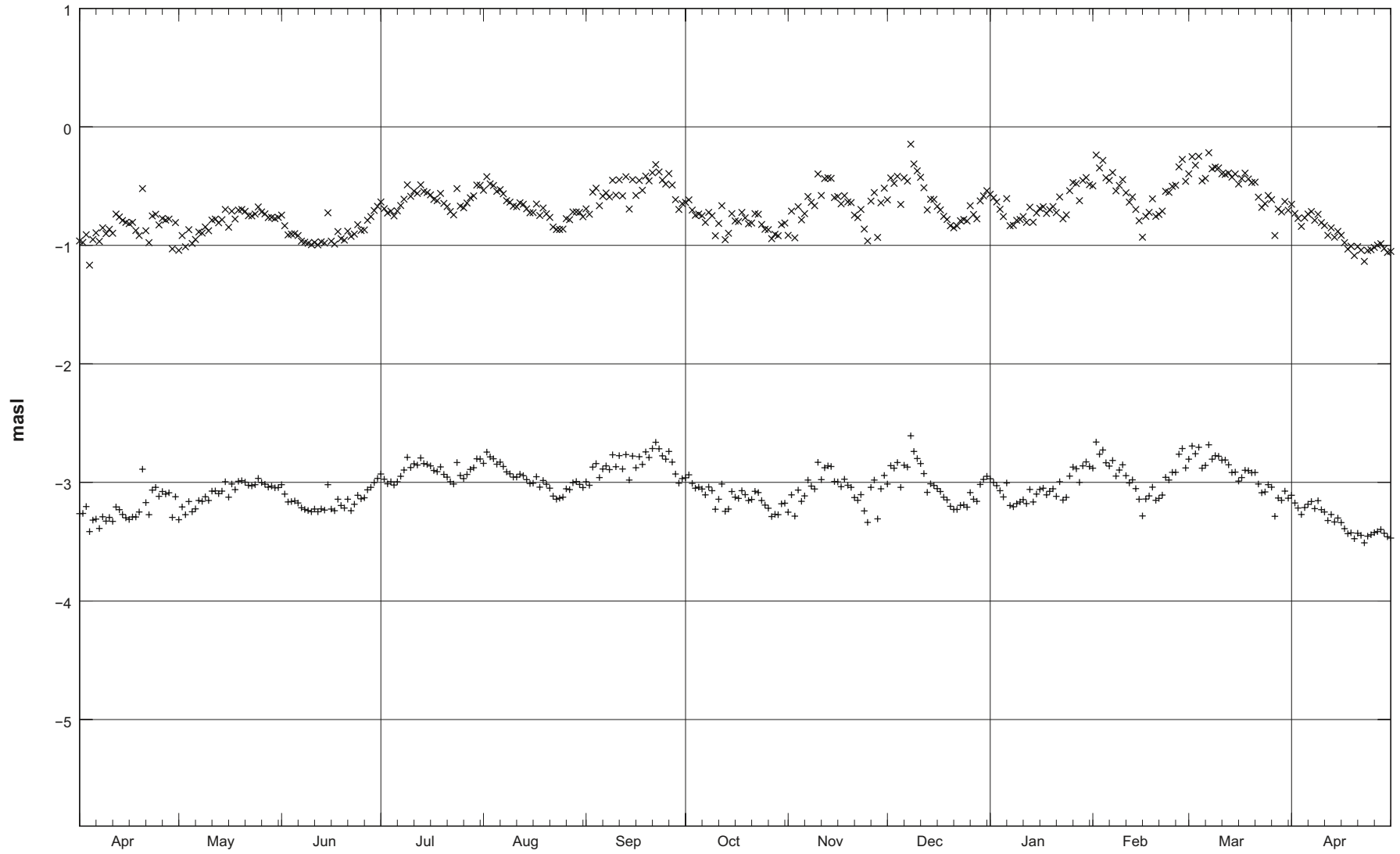
HFM33



64

Start: 2007-04-01 month

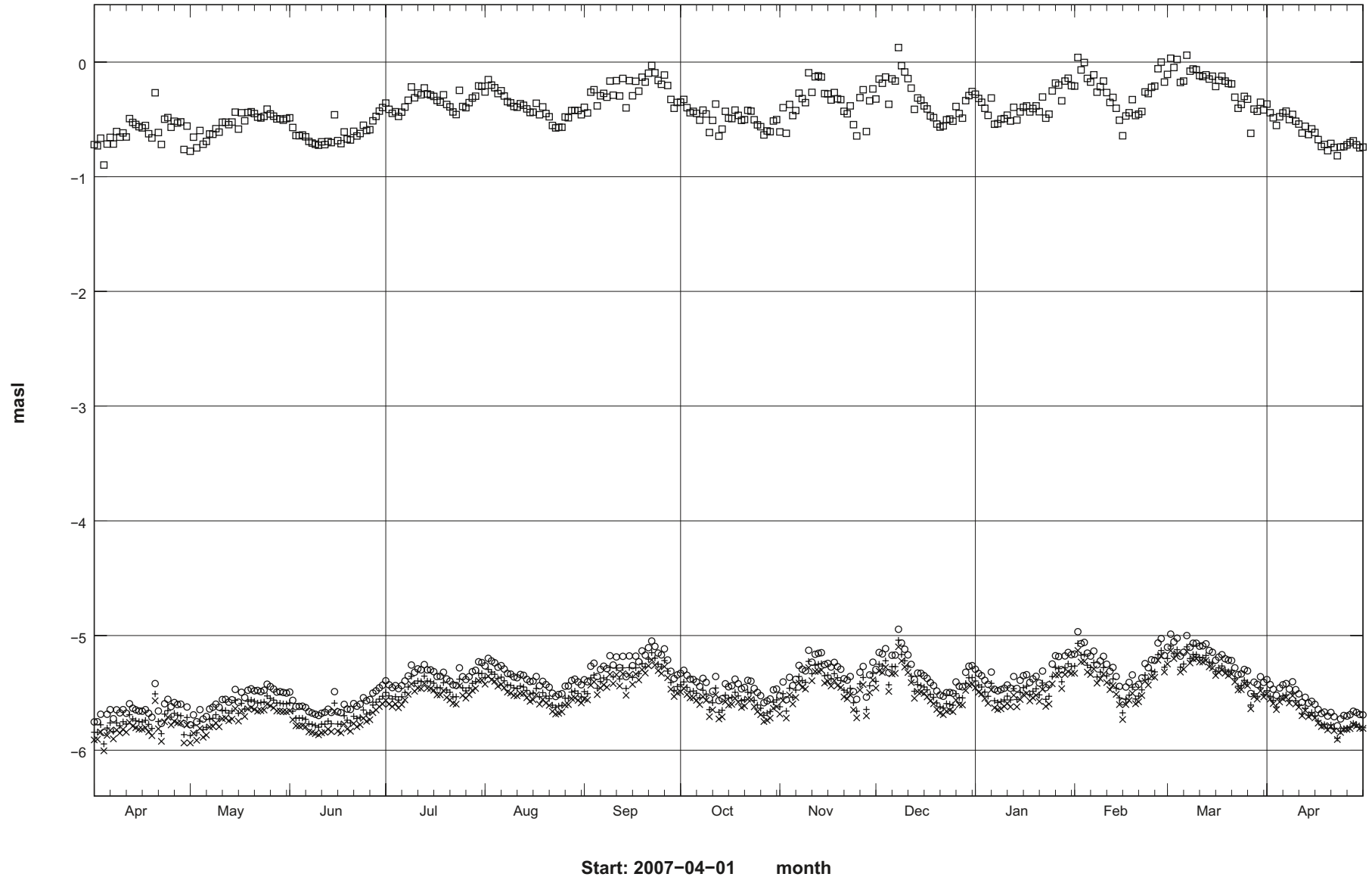
HFM34



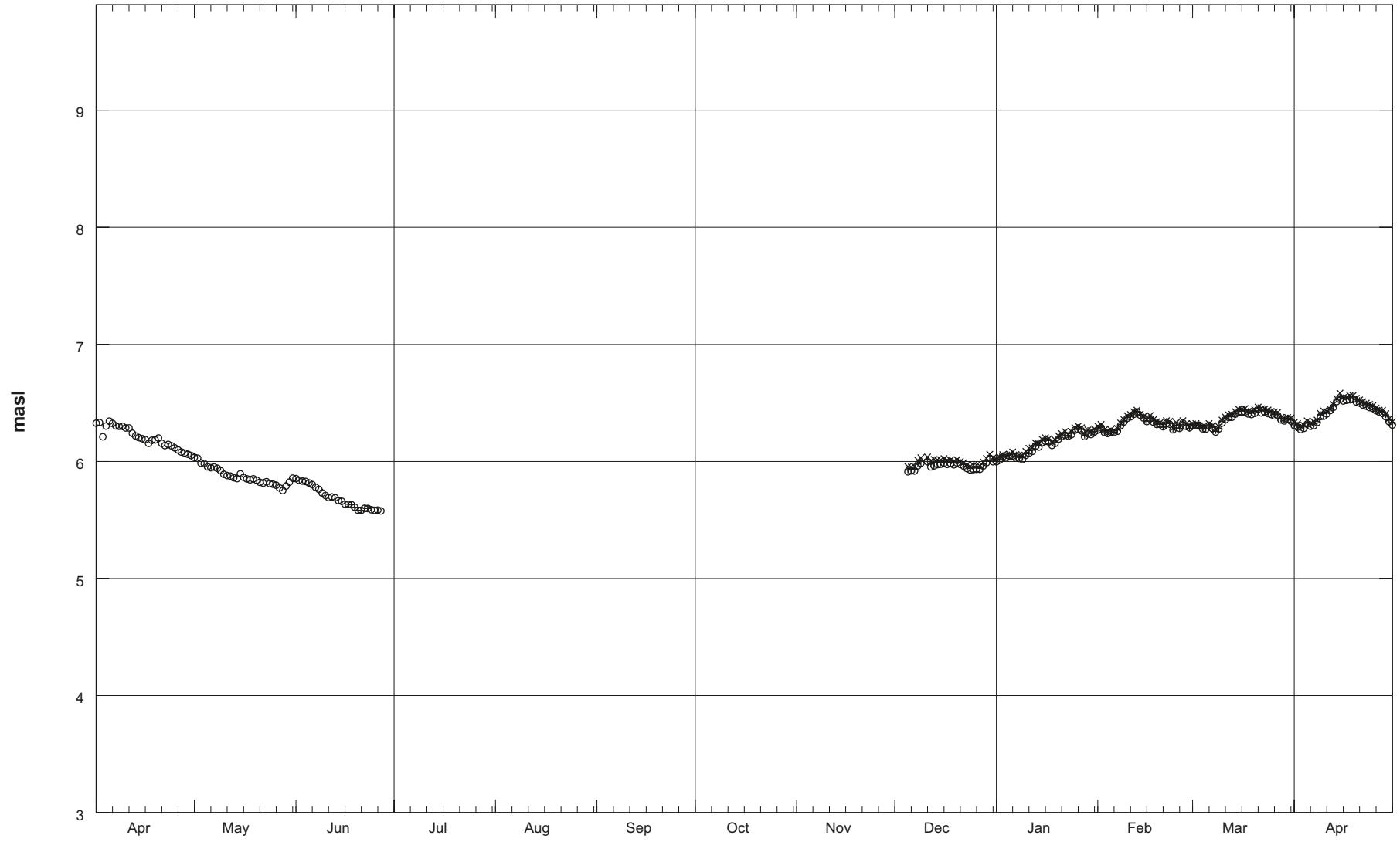
65

Start: 2007-04-01 month

HFM35



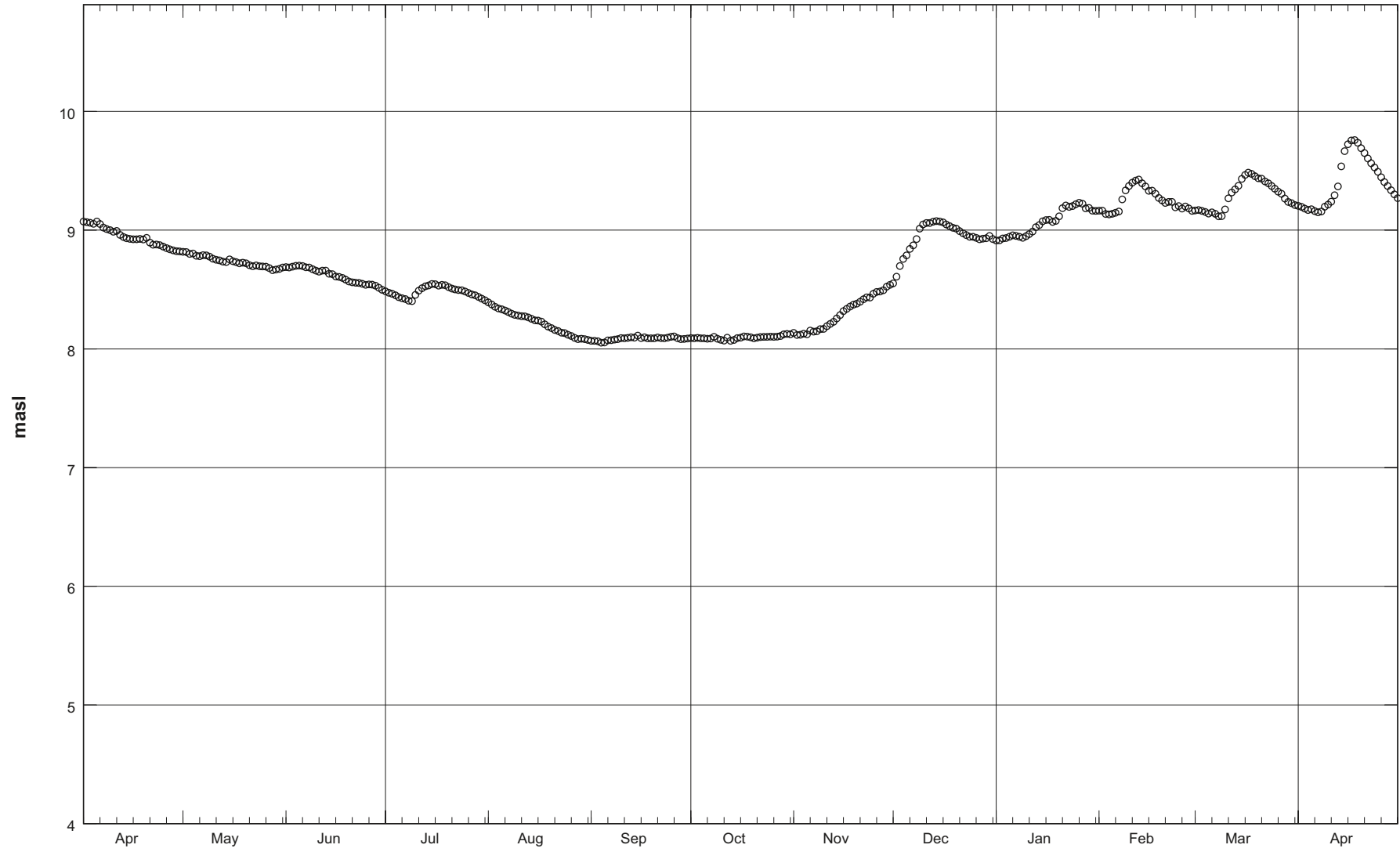
HFM36



67

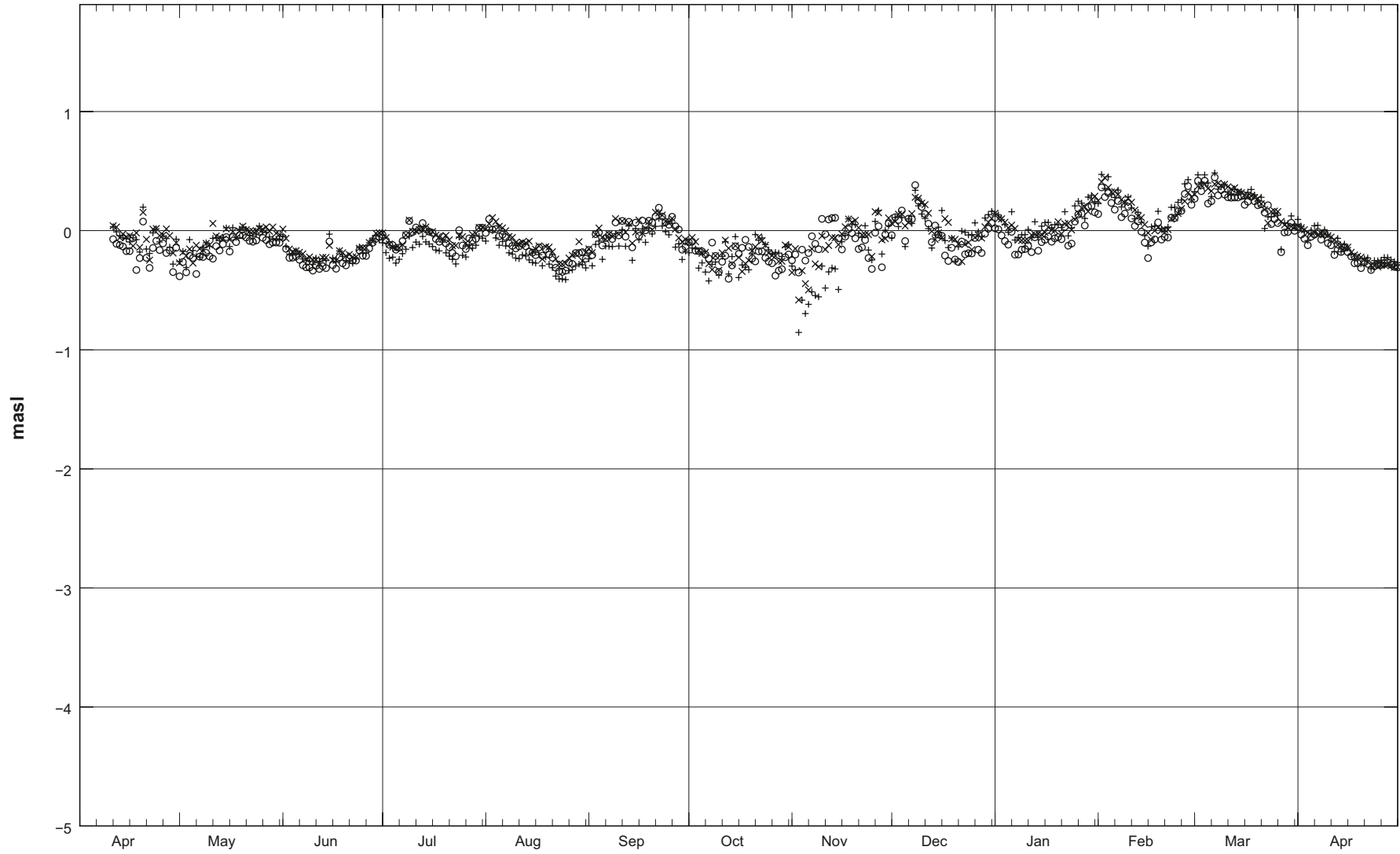
Start: 2007-04-01 month

HFM37



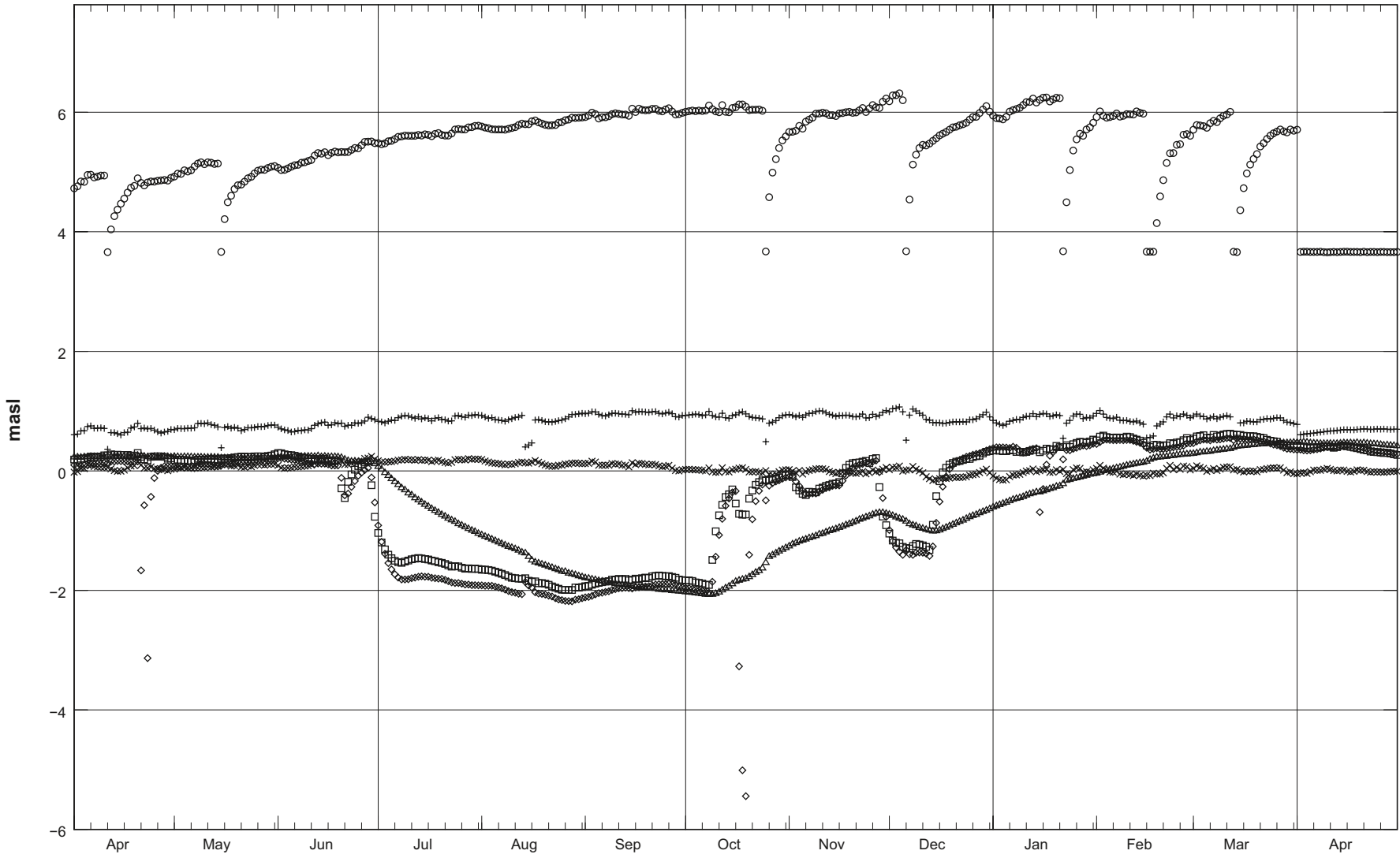
Start: 2007-04-01 month

HFM38



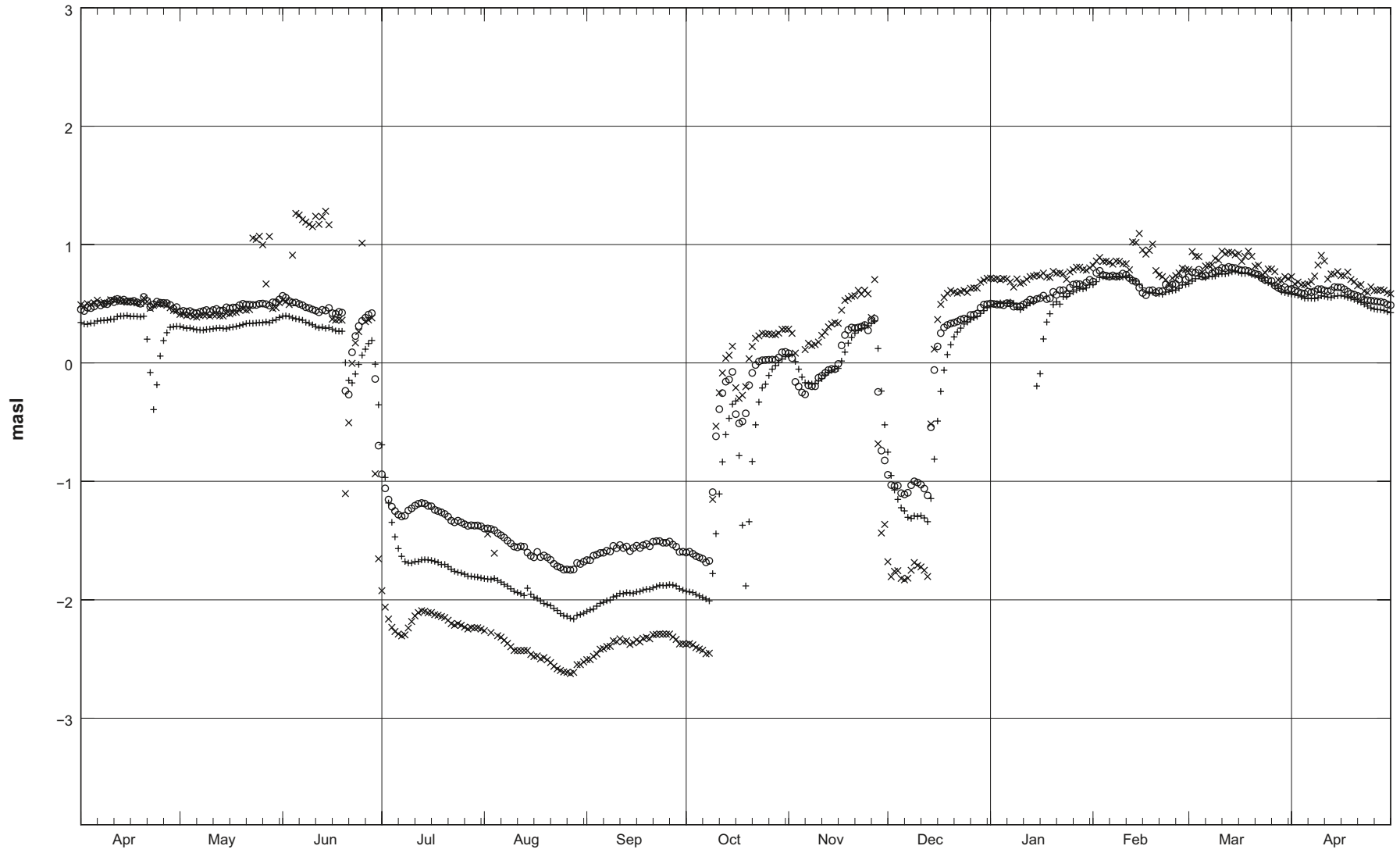
KFM01A

70



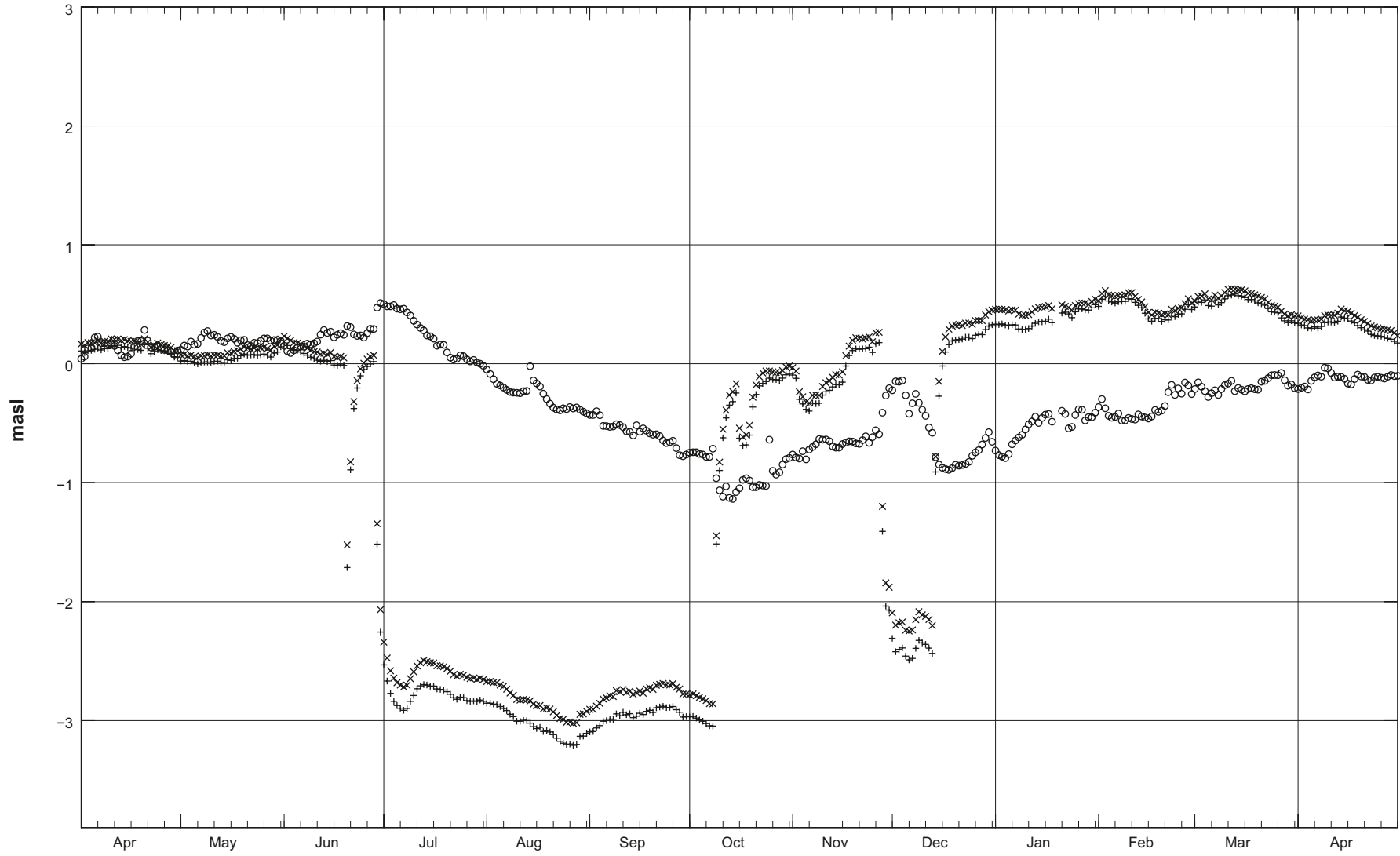
Start: 2007-04-01 month

KFM01B



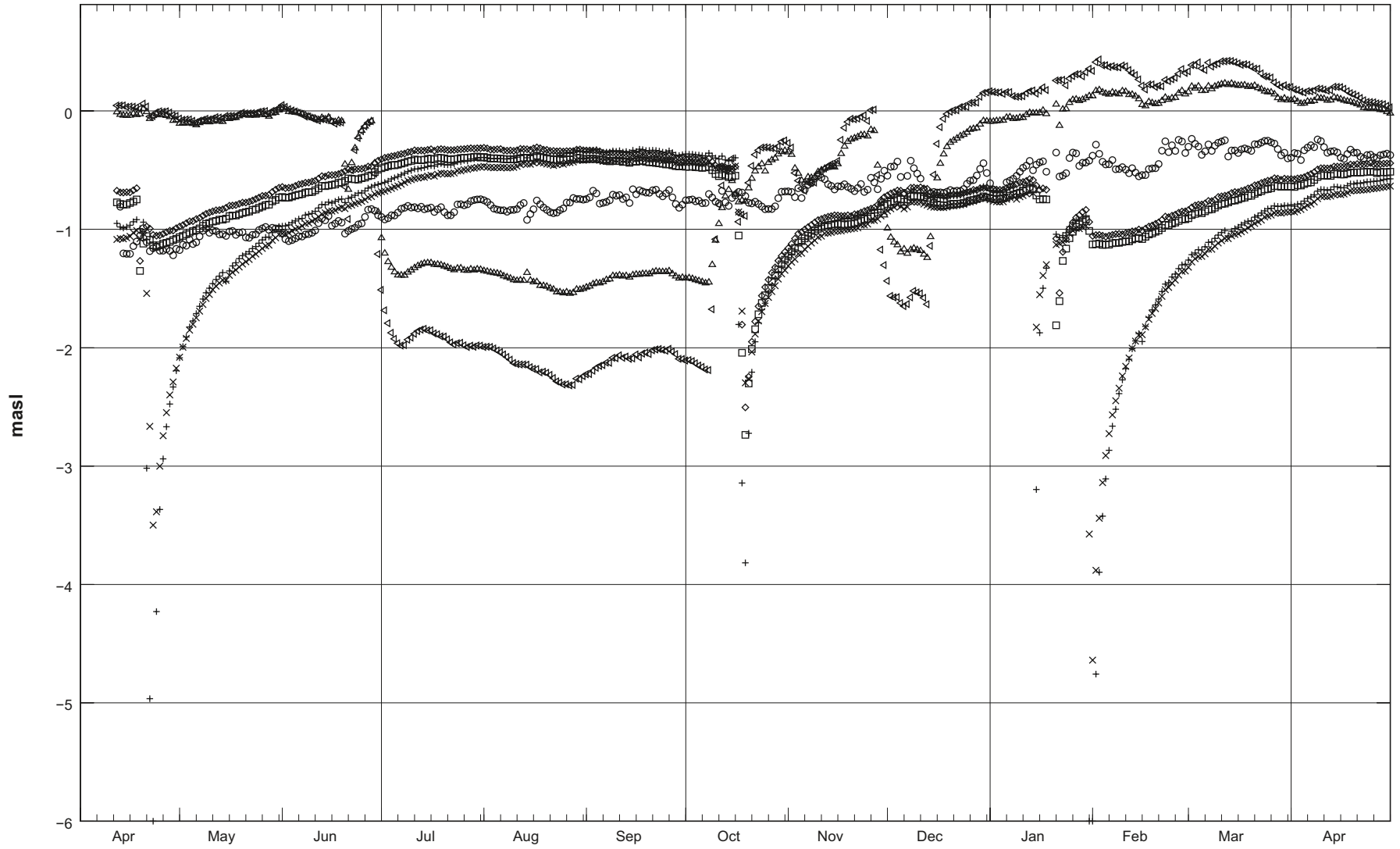
Start: 2007-04-01 month

KFM01C



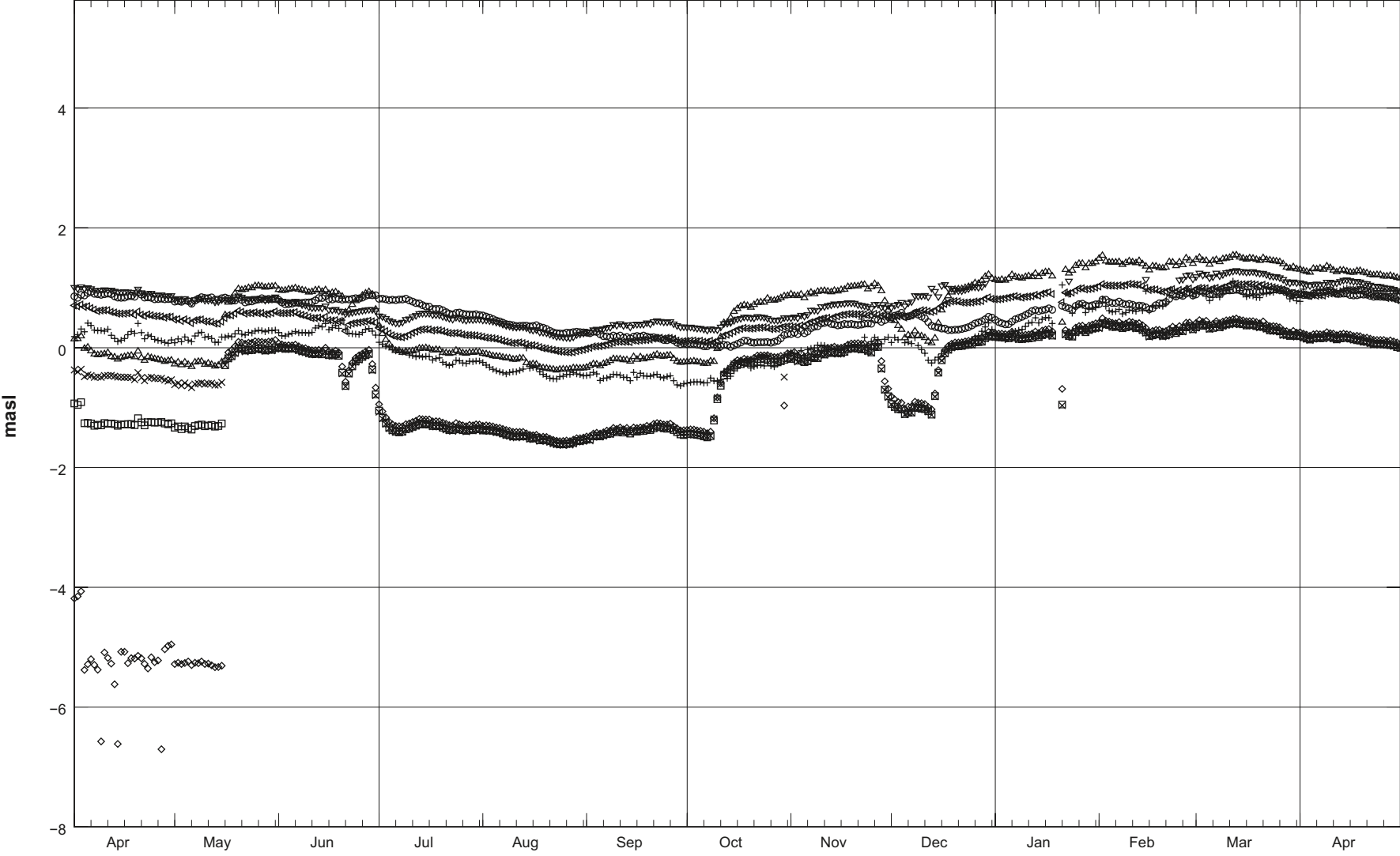
Start: 2007-04-01 month

KFM01D



Start: 2007-04-01 month

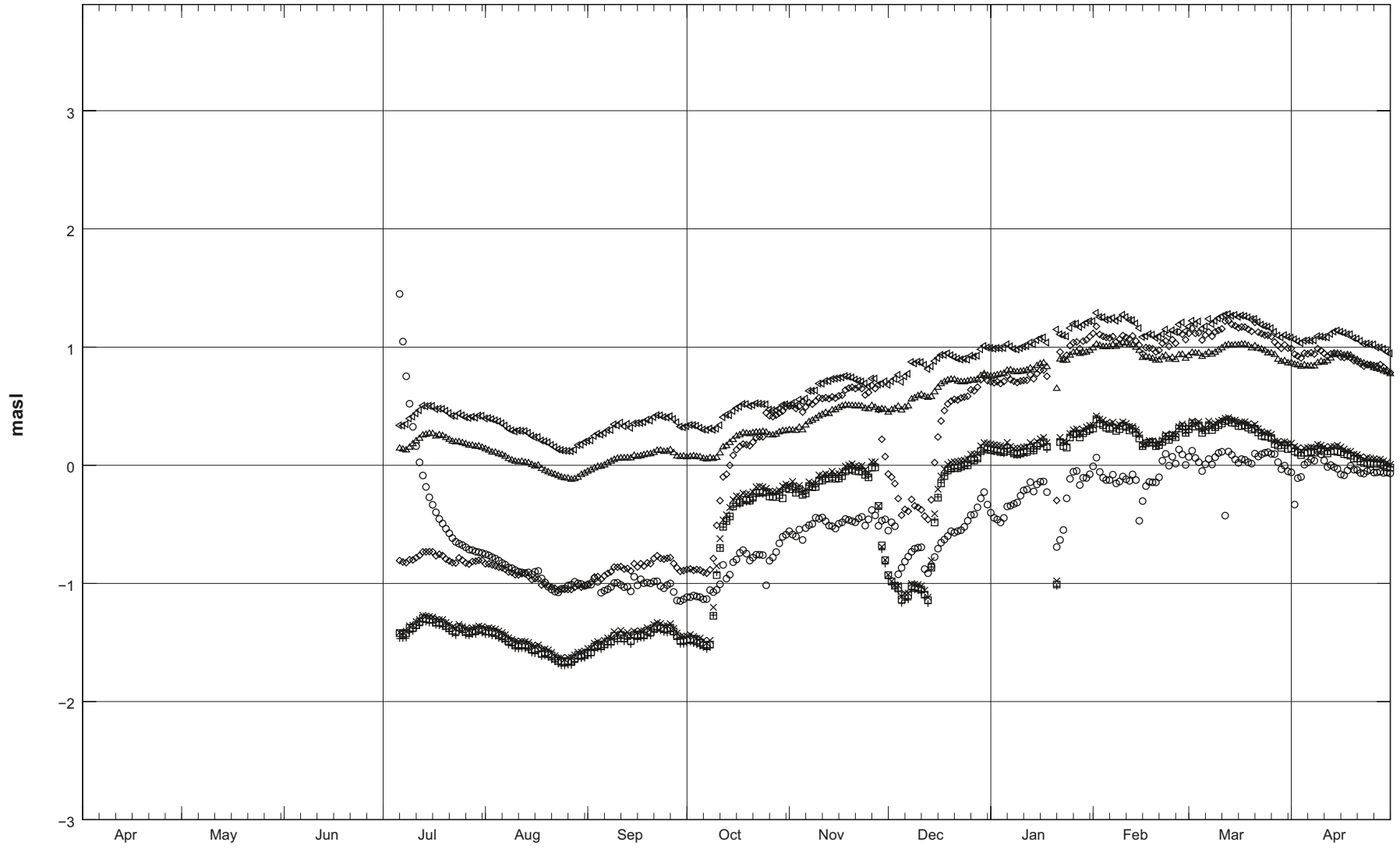
KFM02A



Start: 2007-04-01 month

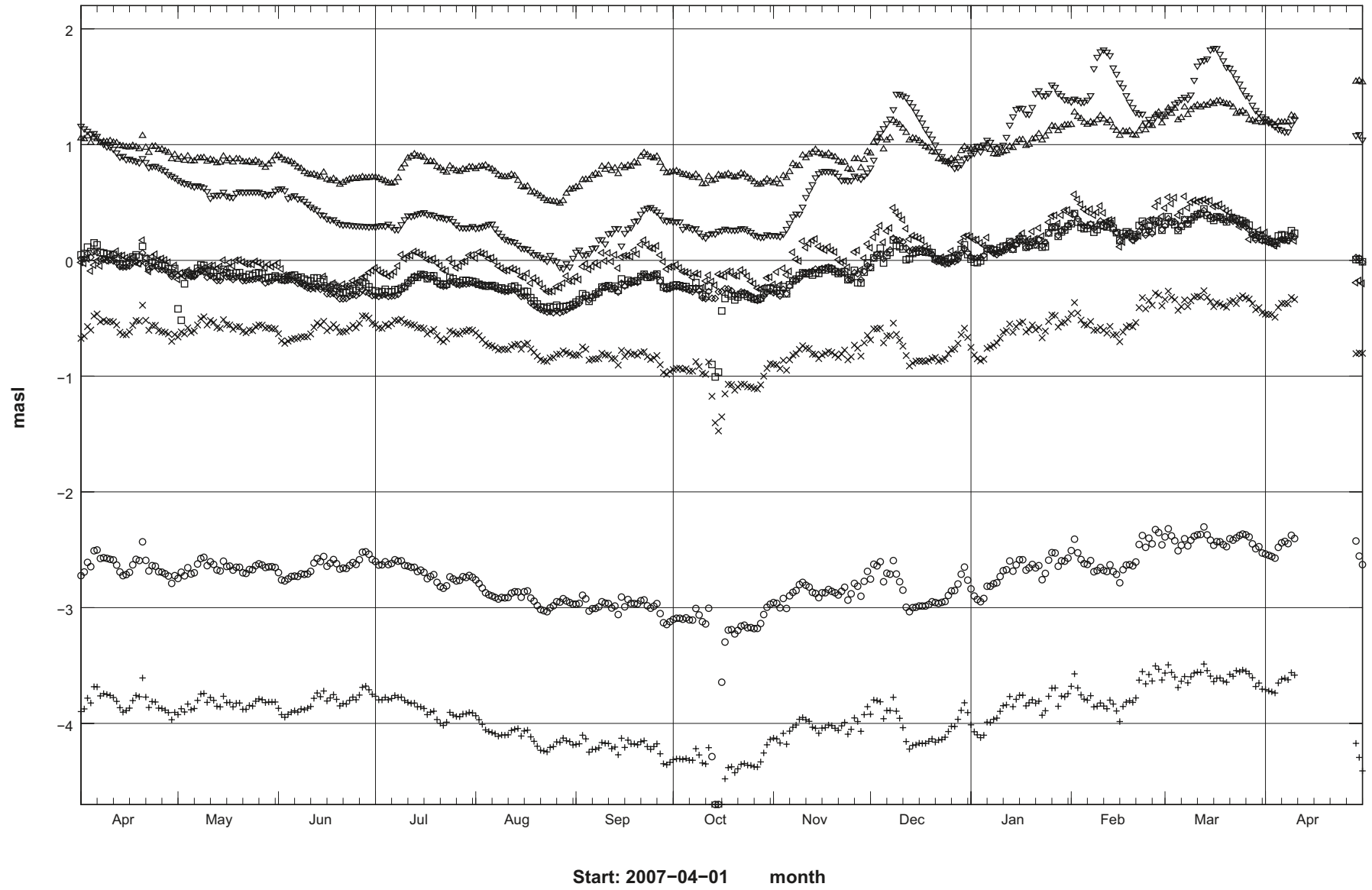
KFM02B

75

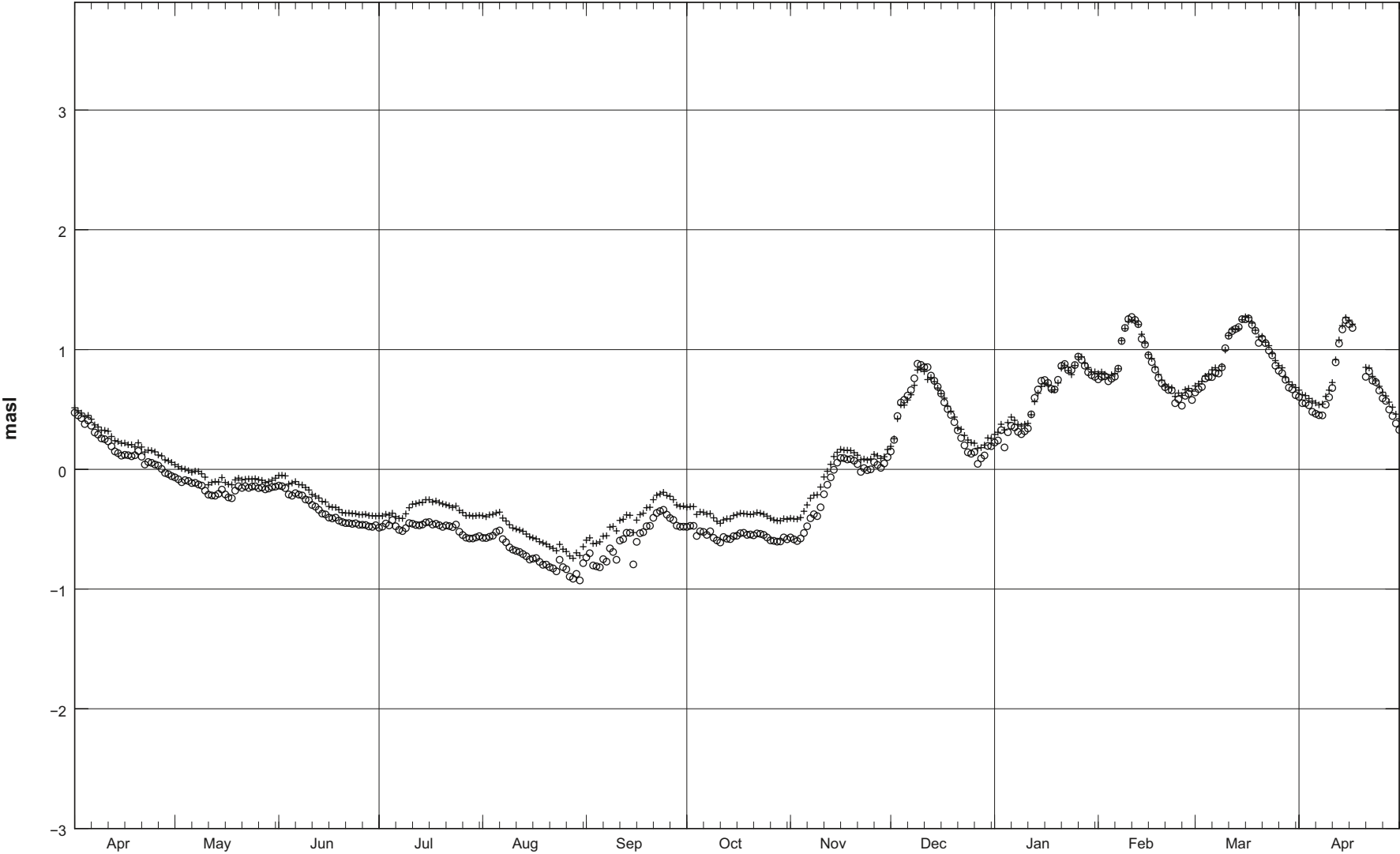


Start: 2007-04-01 month

KFM03A

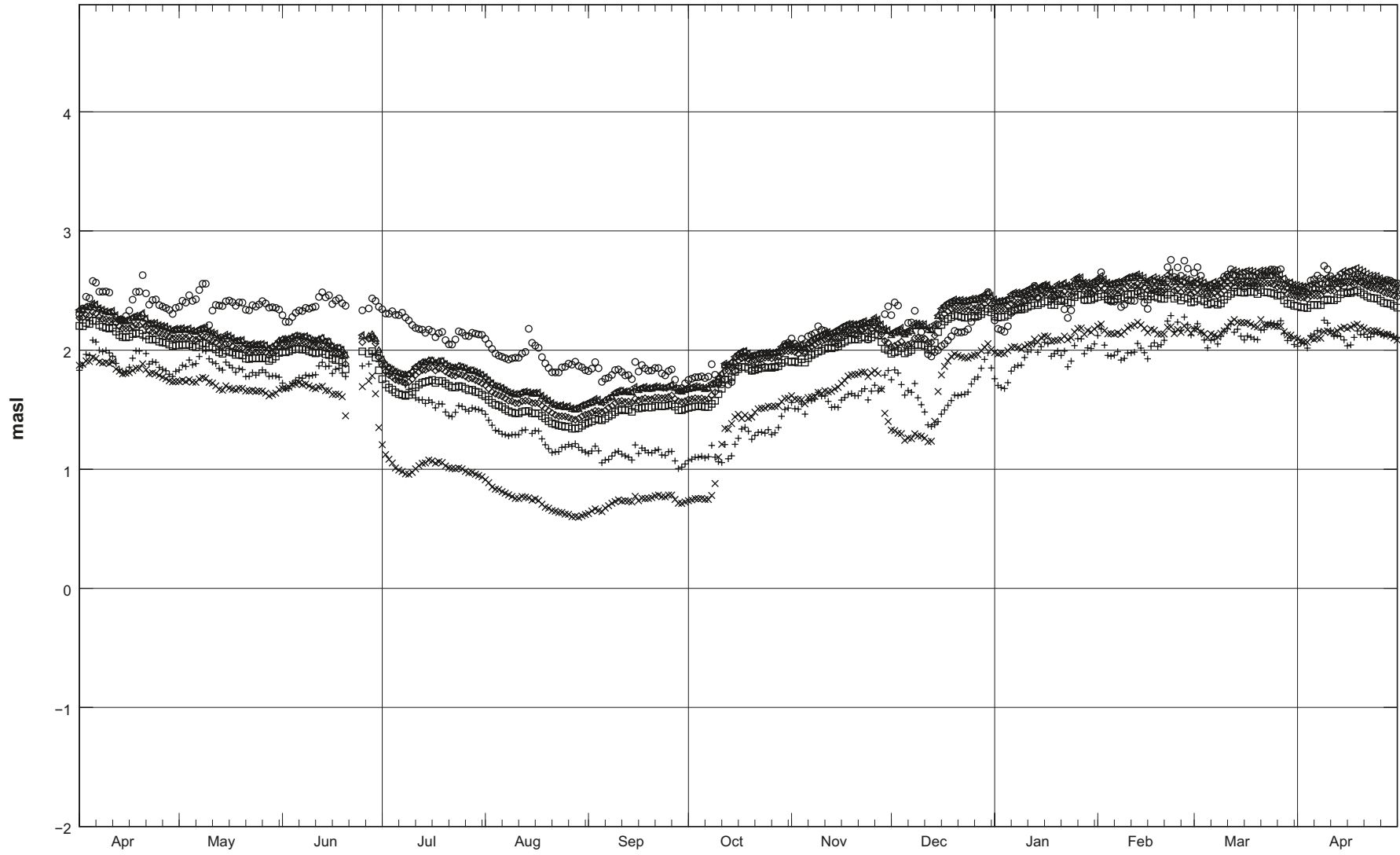


KFM03B



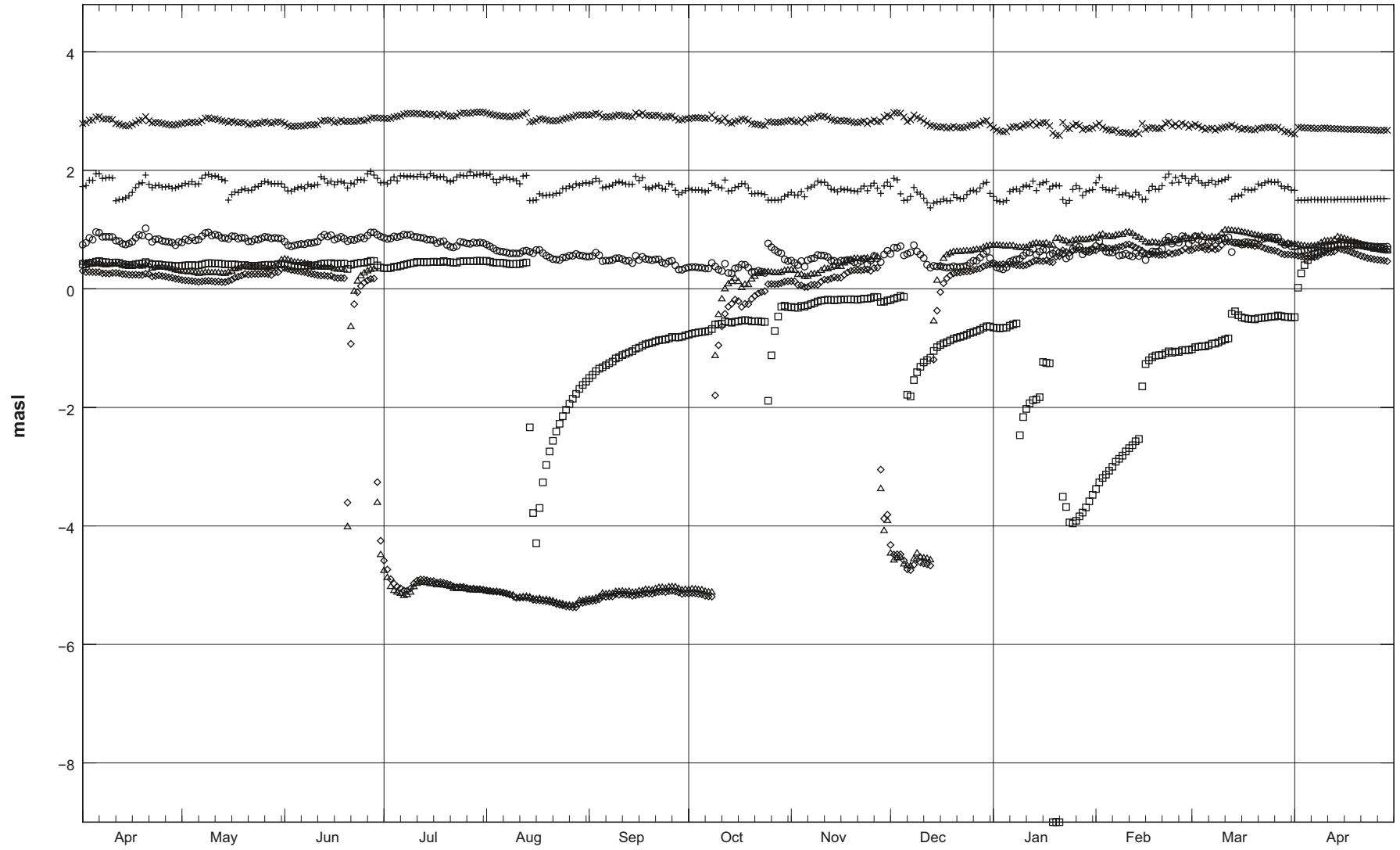
Start: 2007-04-01 month

KFM04A



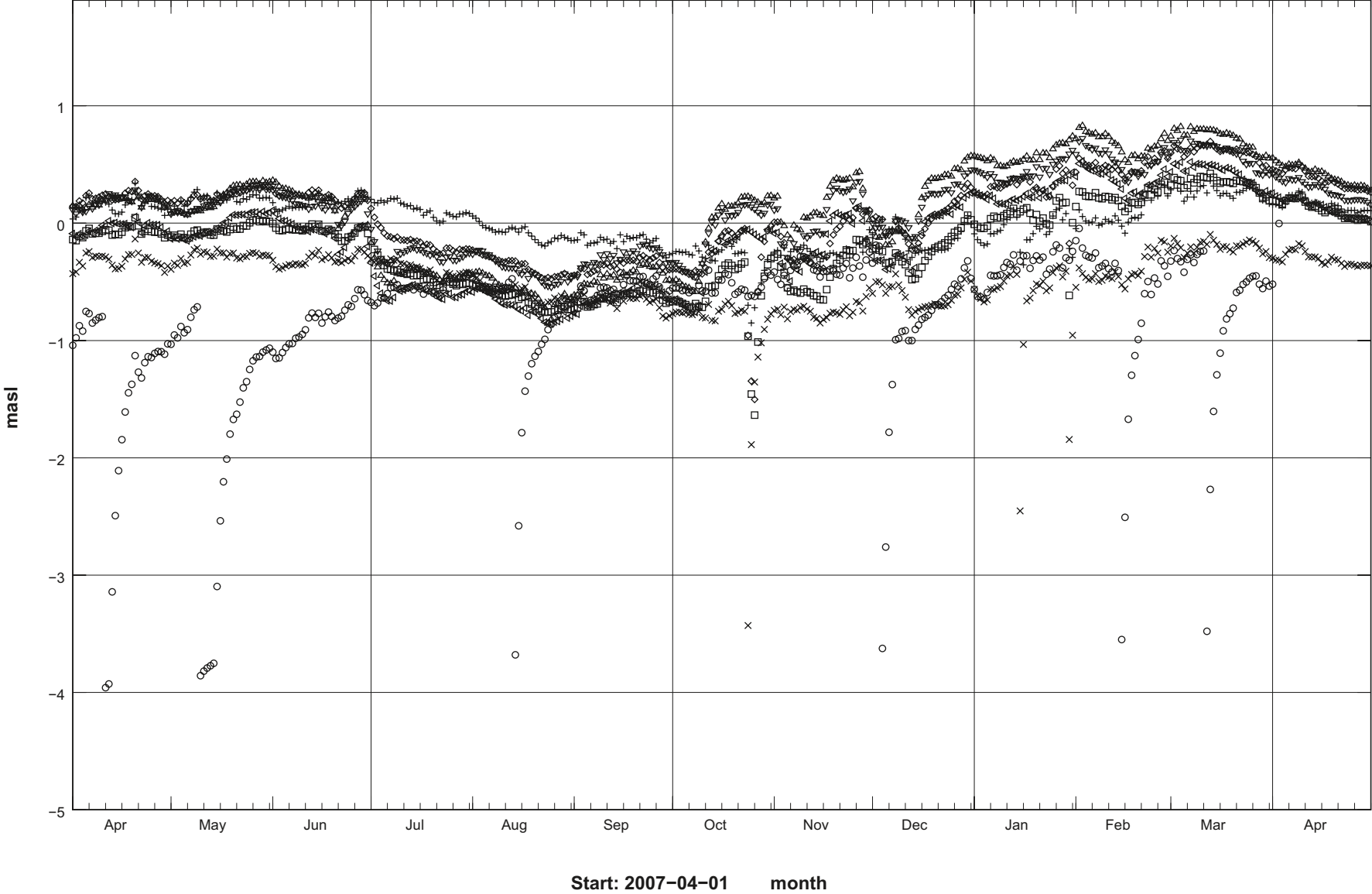
Start: 2007-04-01 month

KFM05A

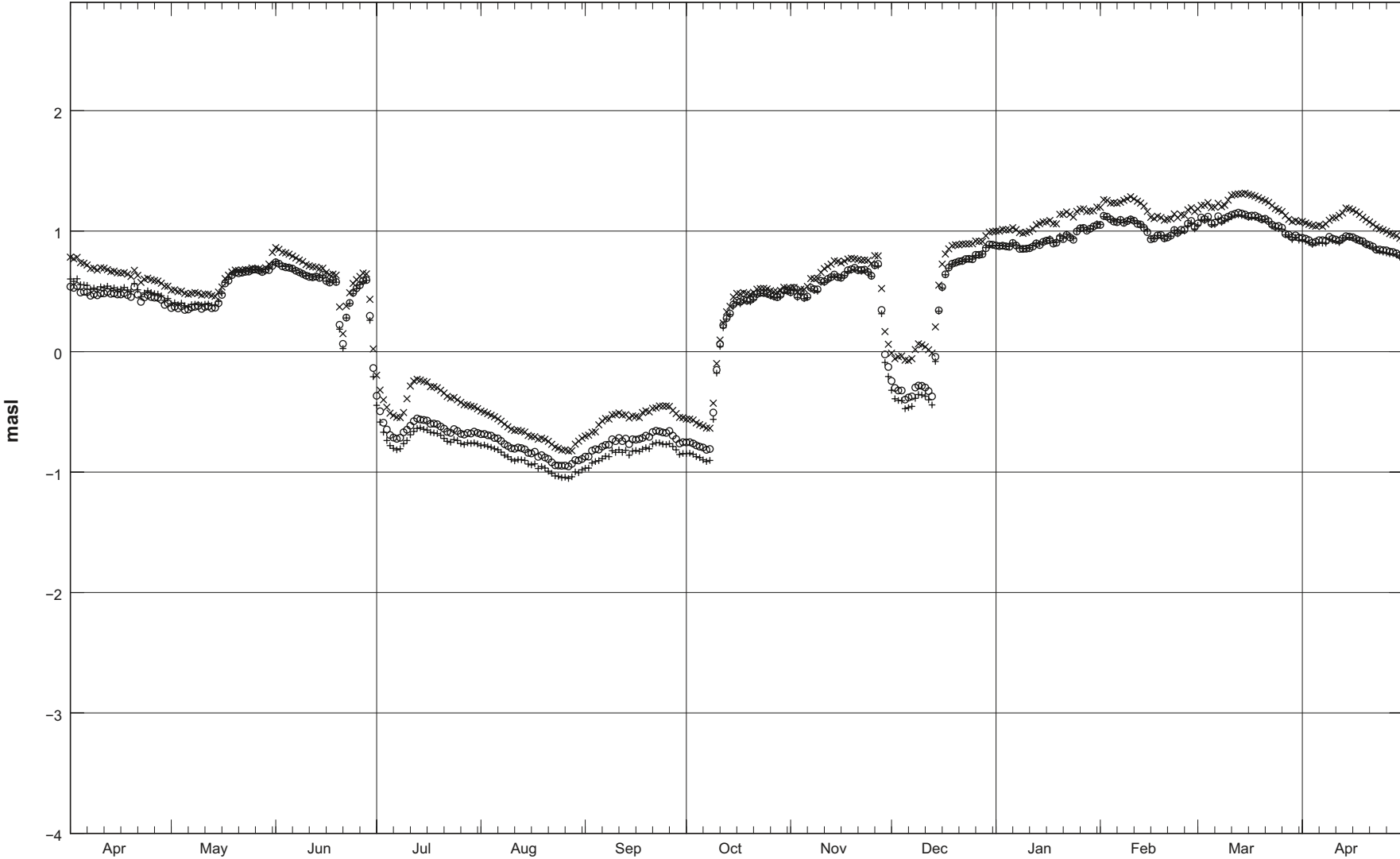


Start: 2007-04-01 month

KFM06A

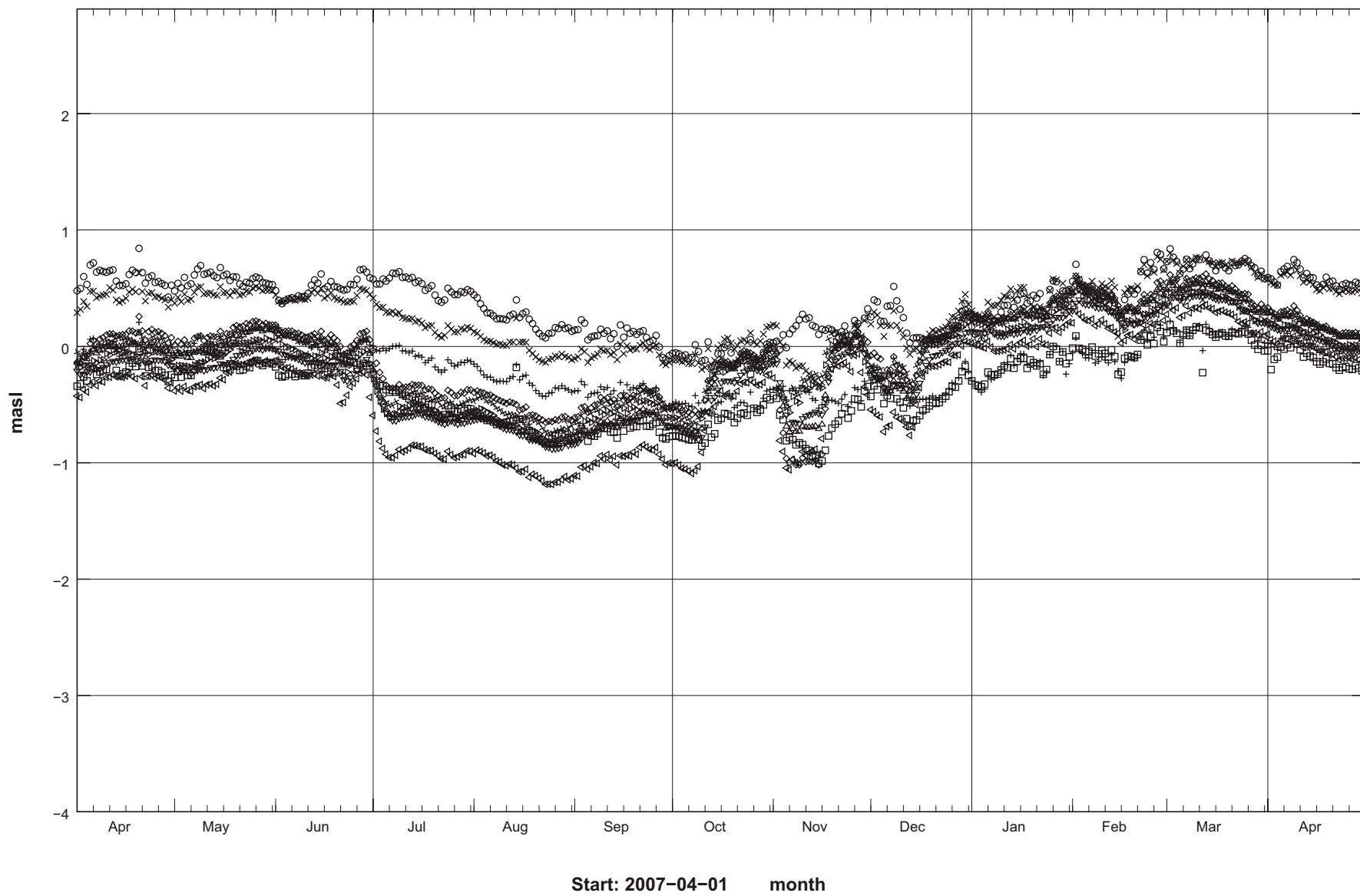


KFM06B

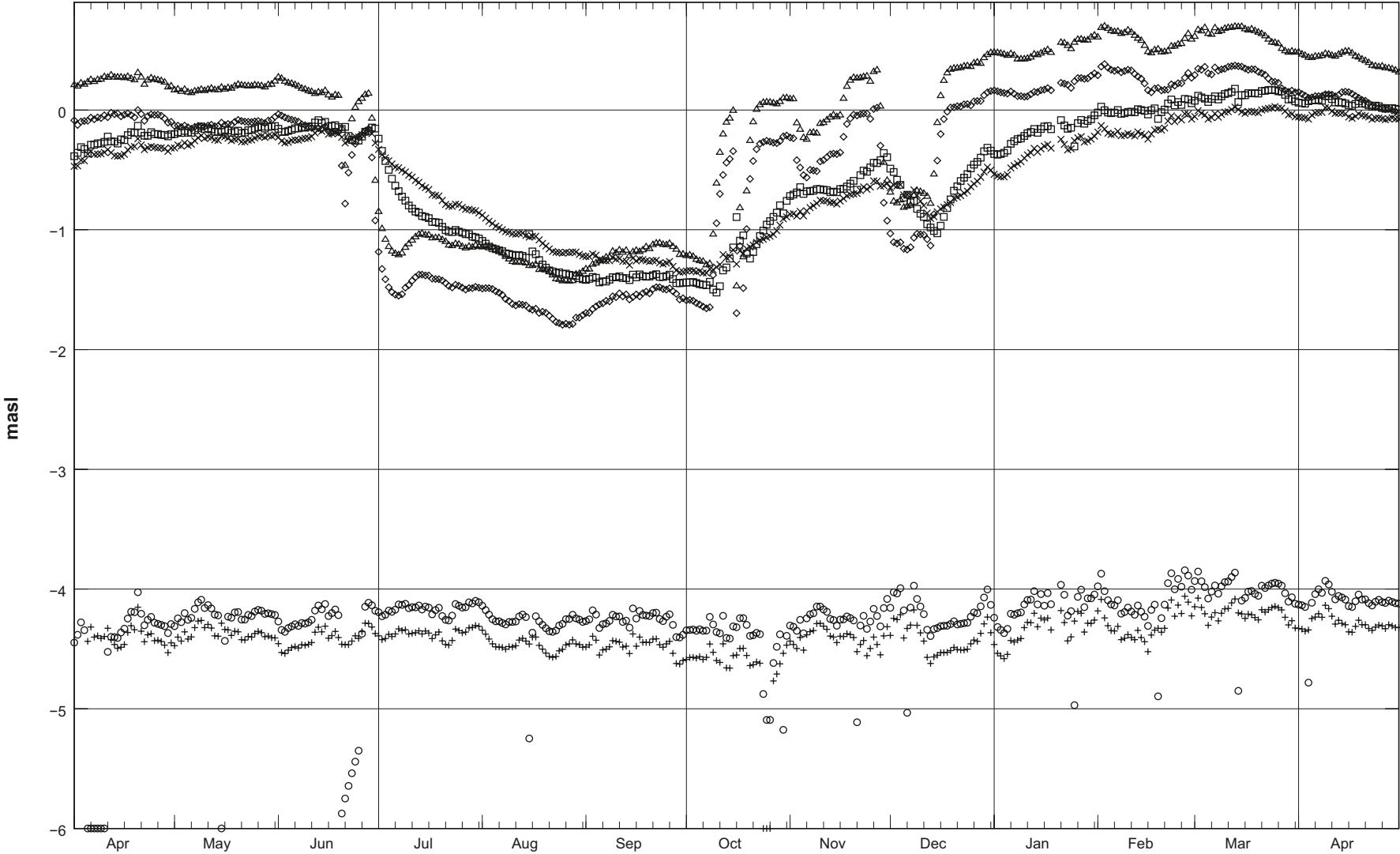


Start: 2007-04-01 month

KFM06C

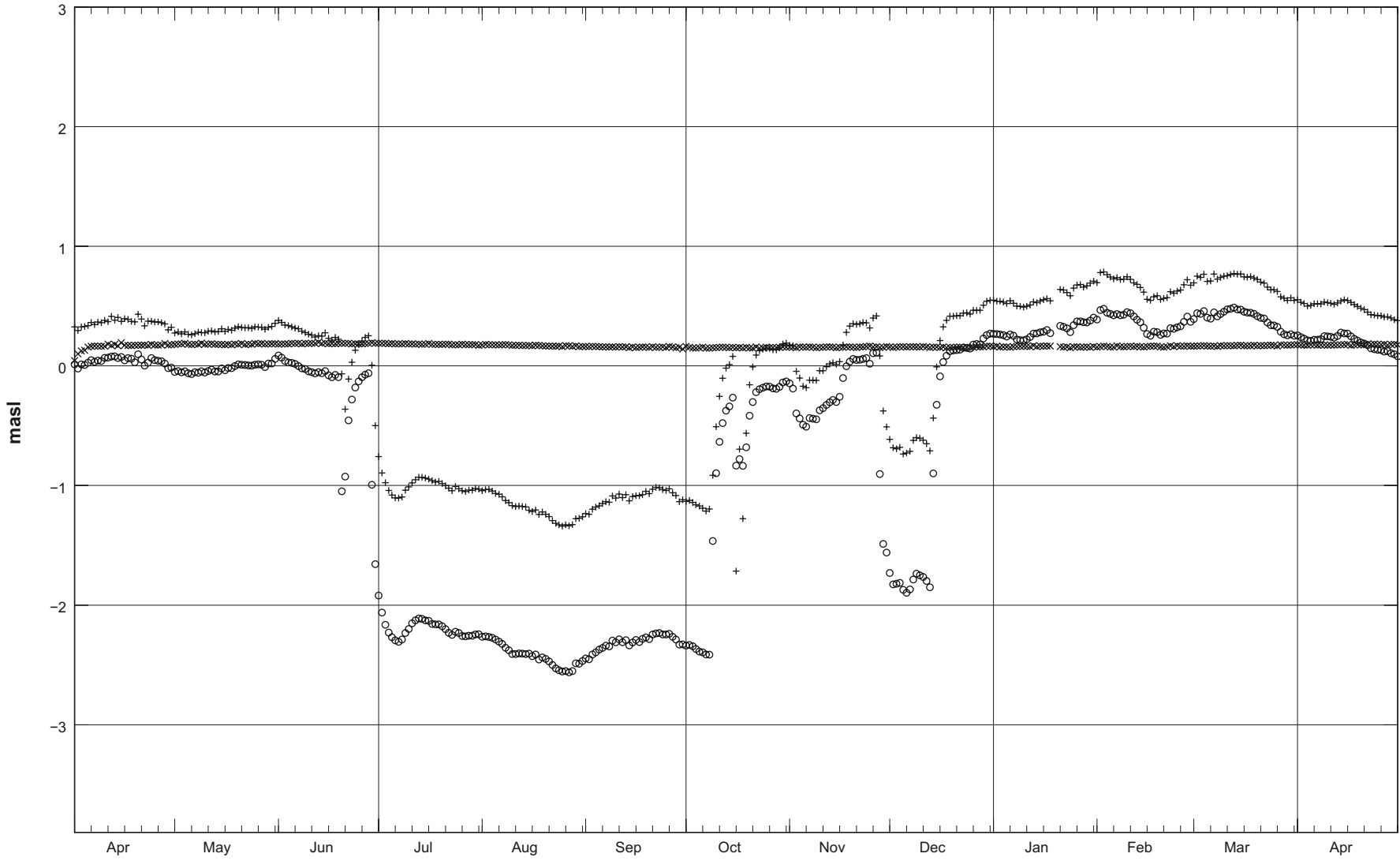


KFM07A



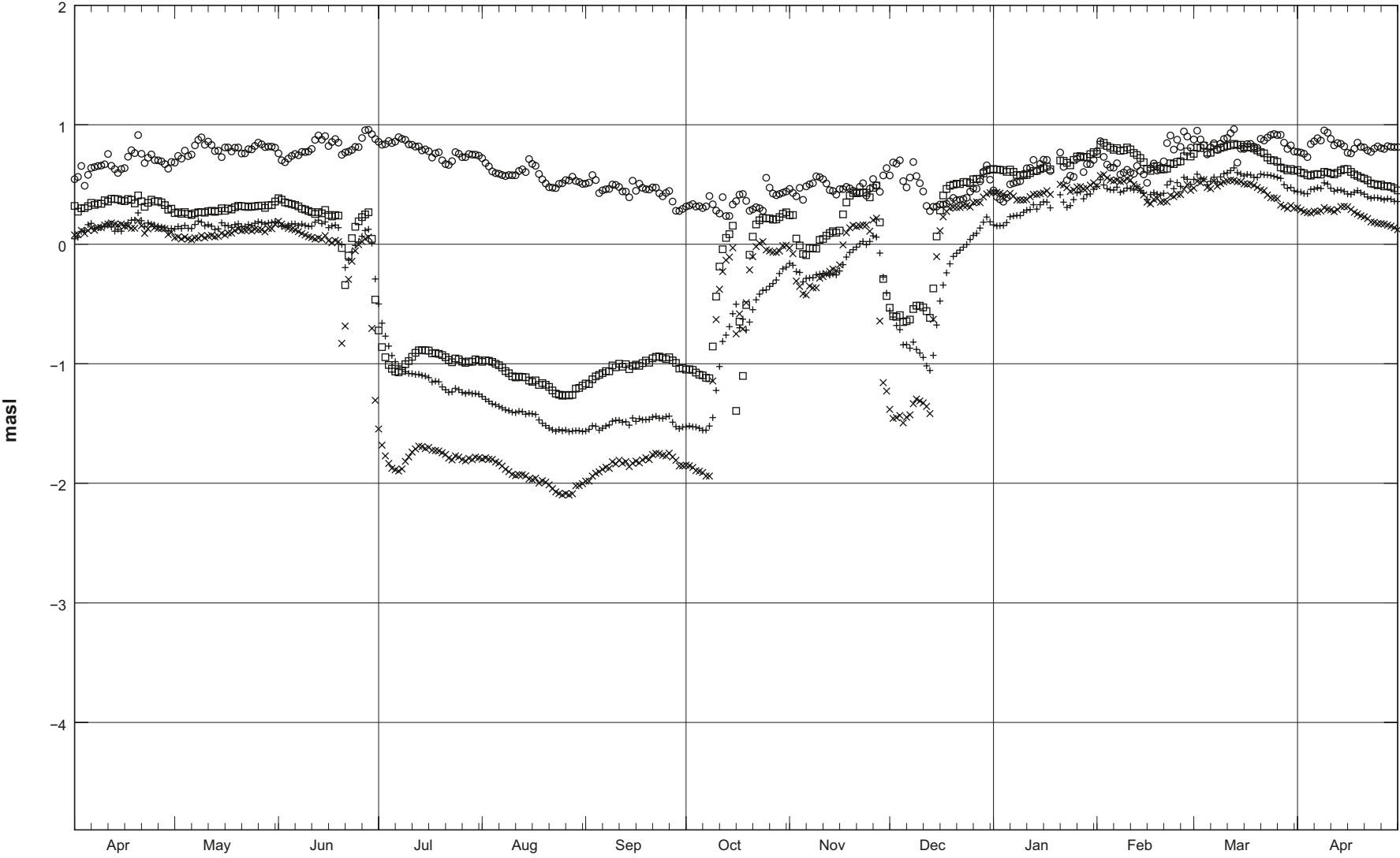
Start: 2007-04-01 month

KFM07B



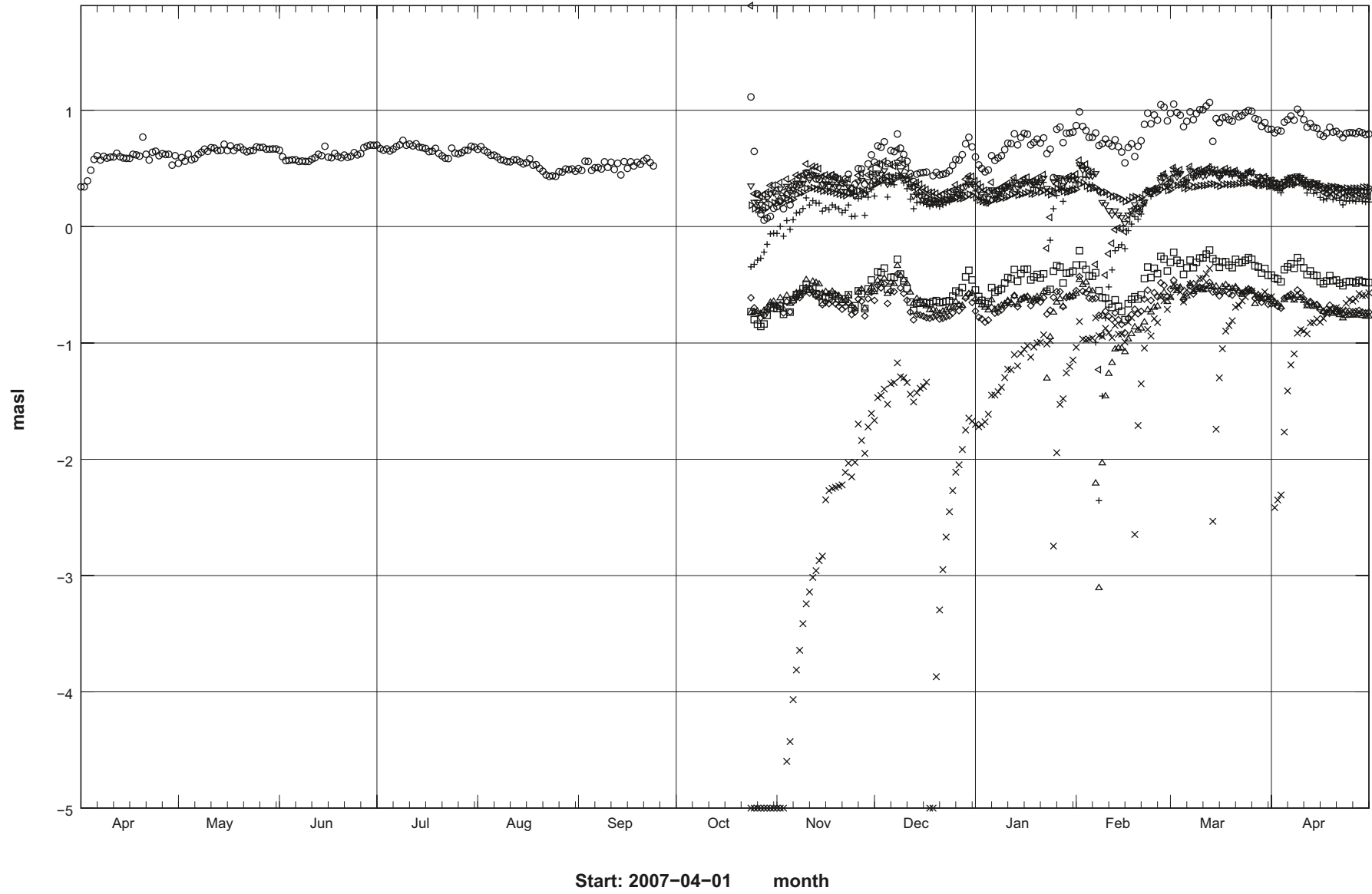
Start: 2007-04-01 month

KFM07C

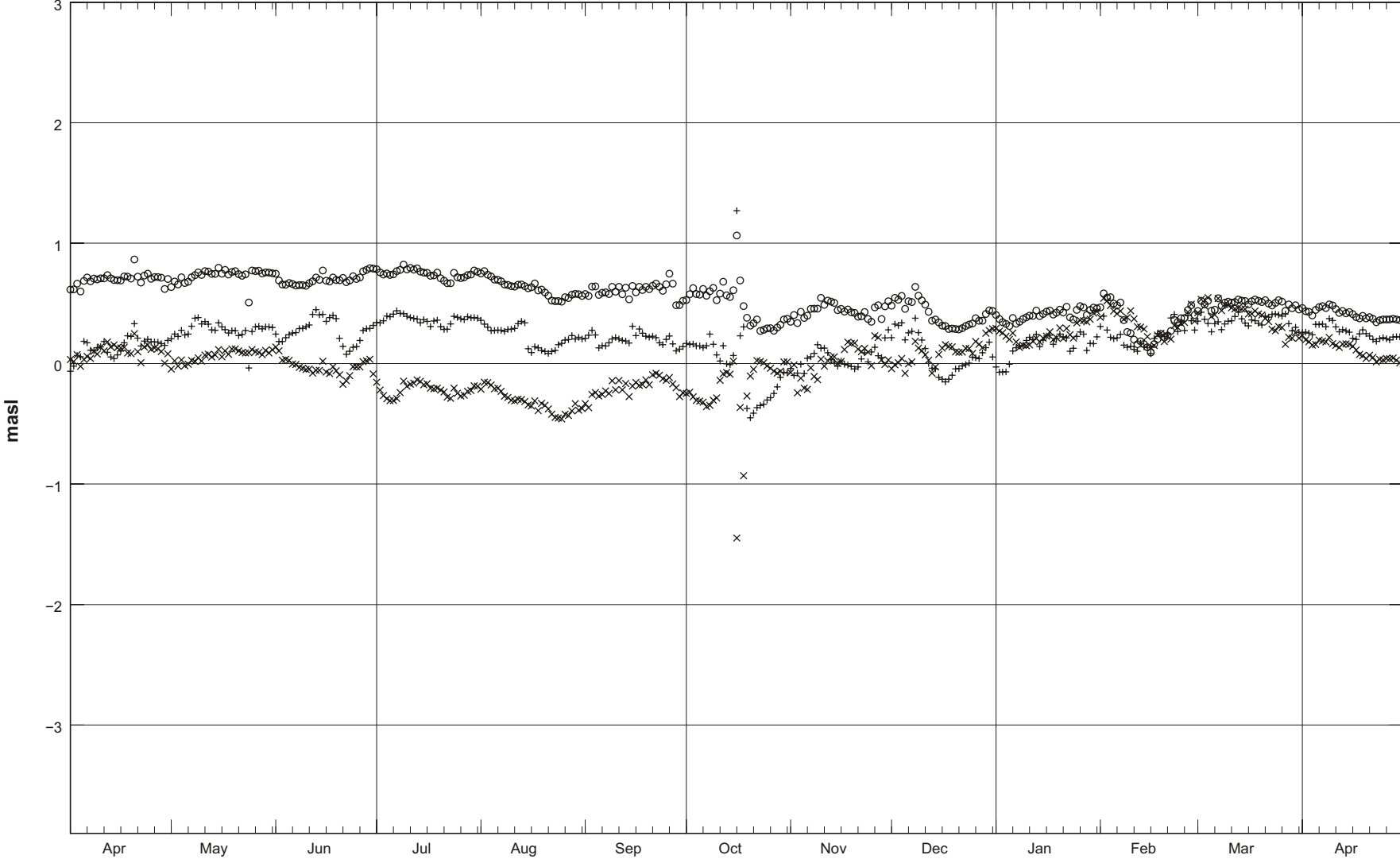


Start: 2007-04-01 month

KFM08A

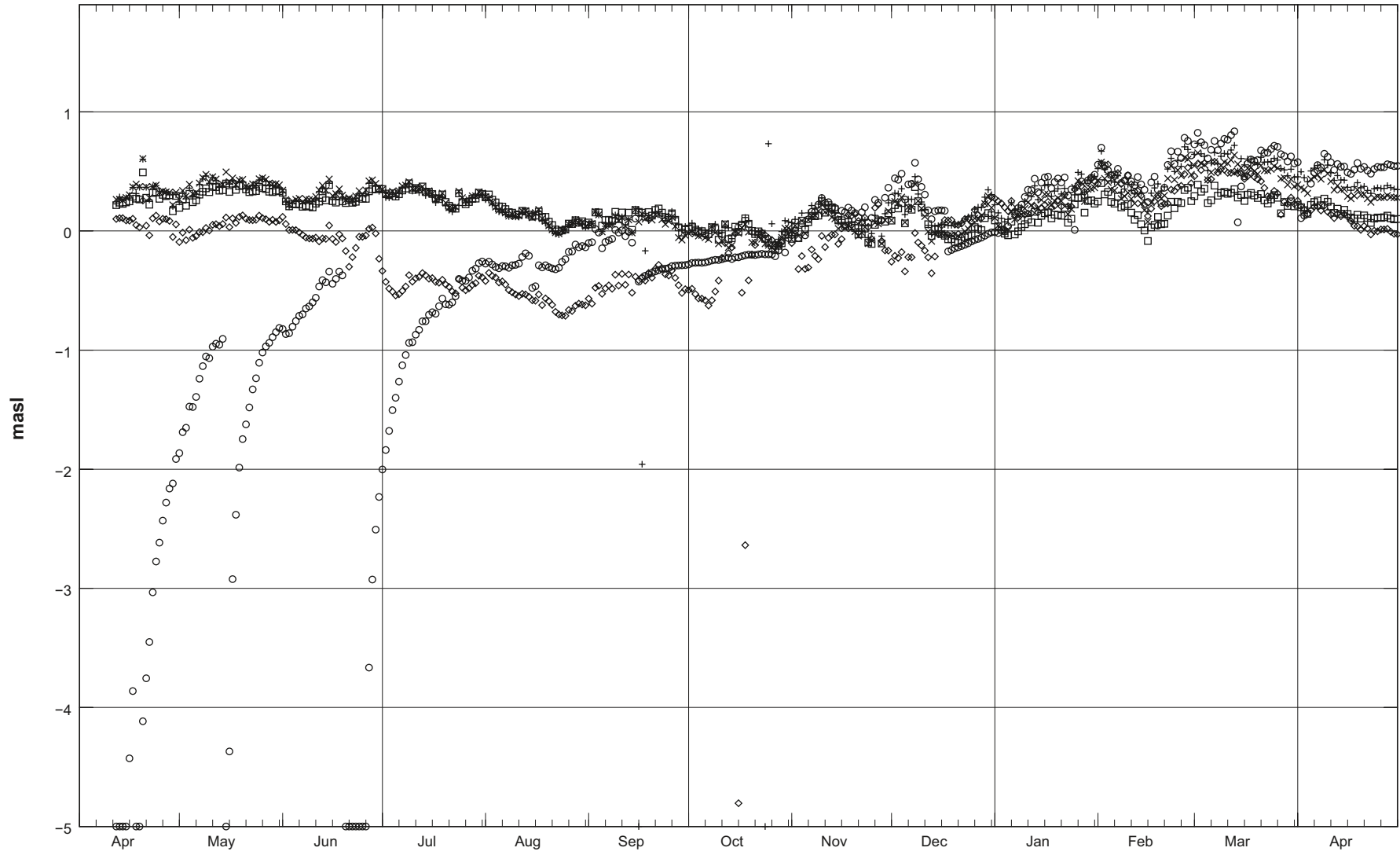


KFM08B



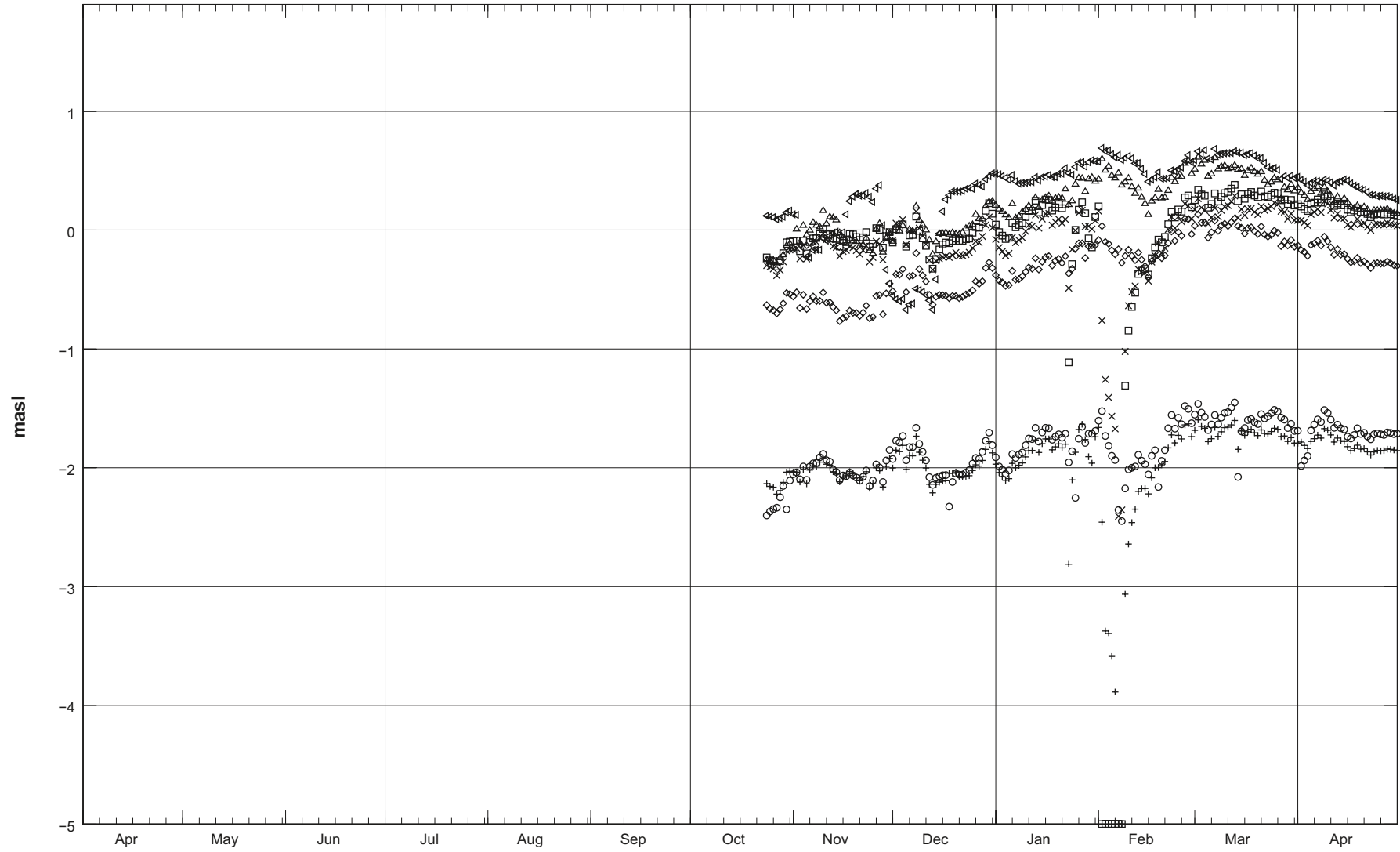
Start: 2007-04-01 month

KFM08C

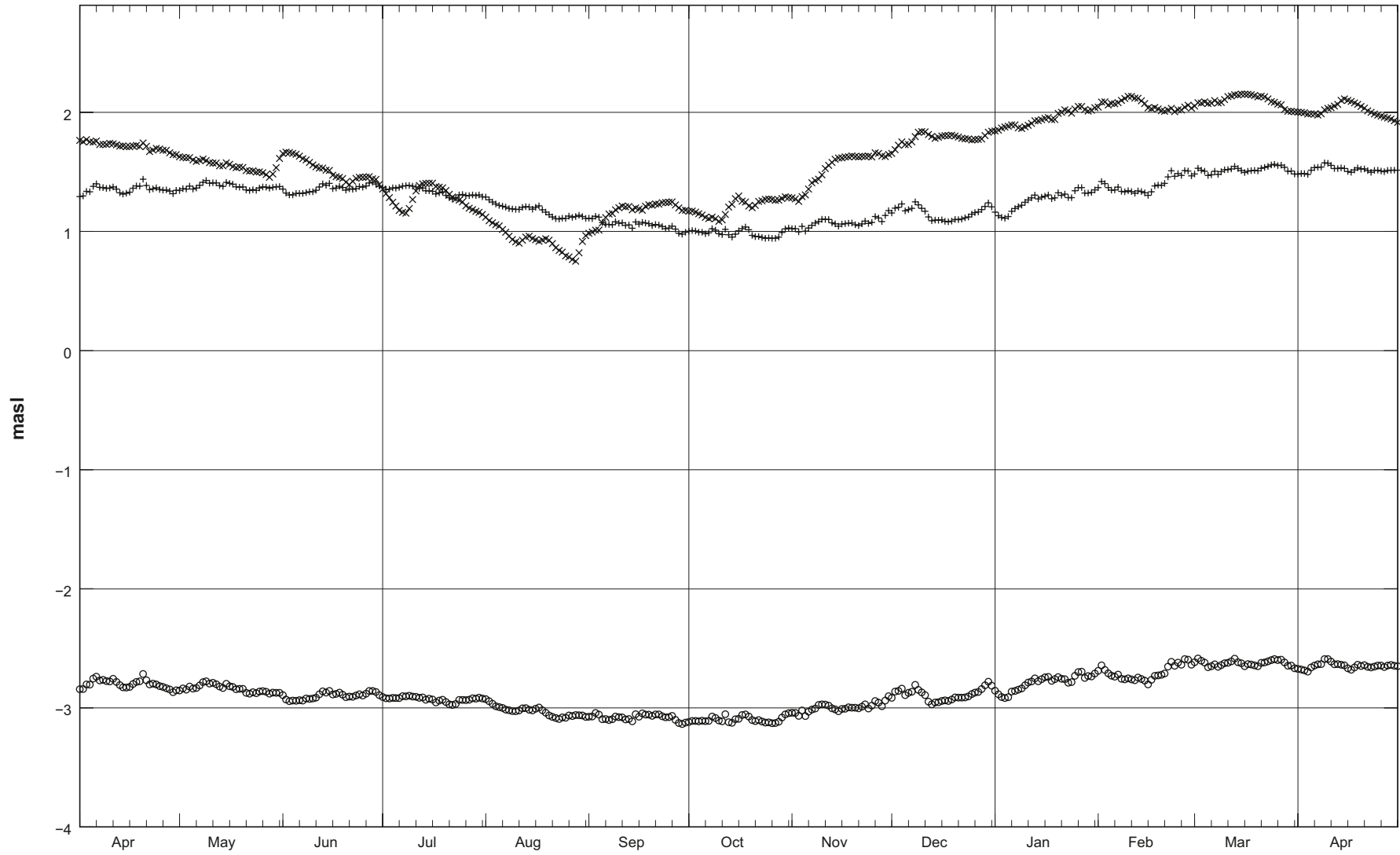


Start: 2007-04-01 month

KFM08D

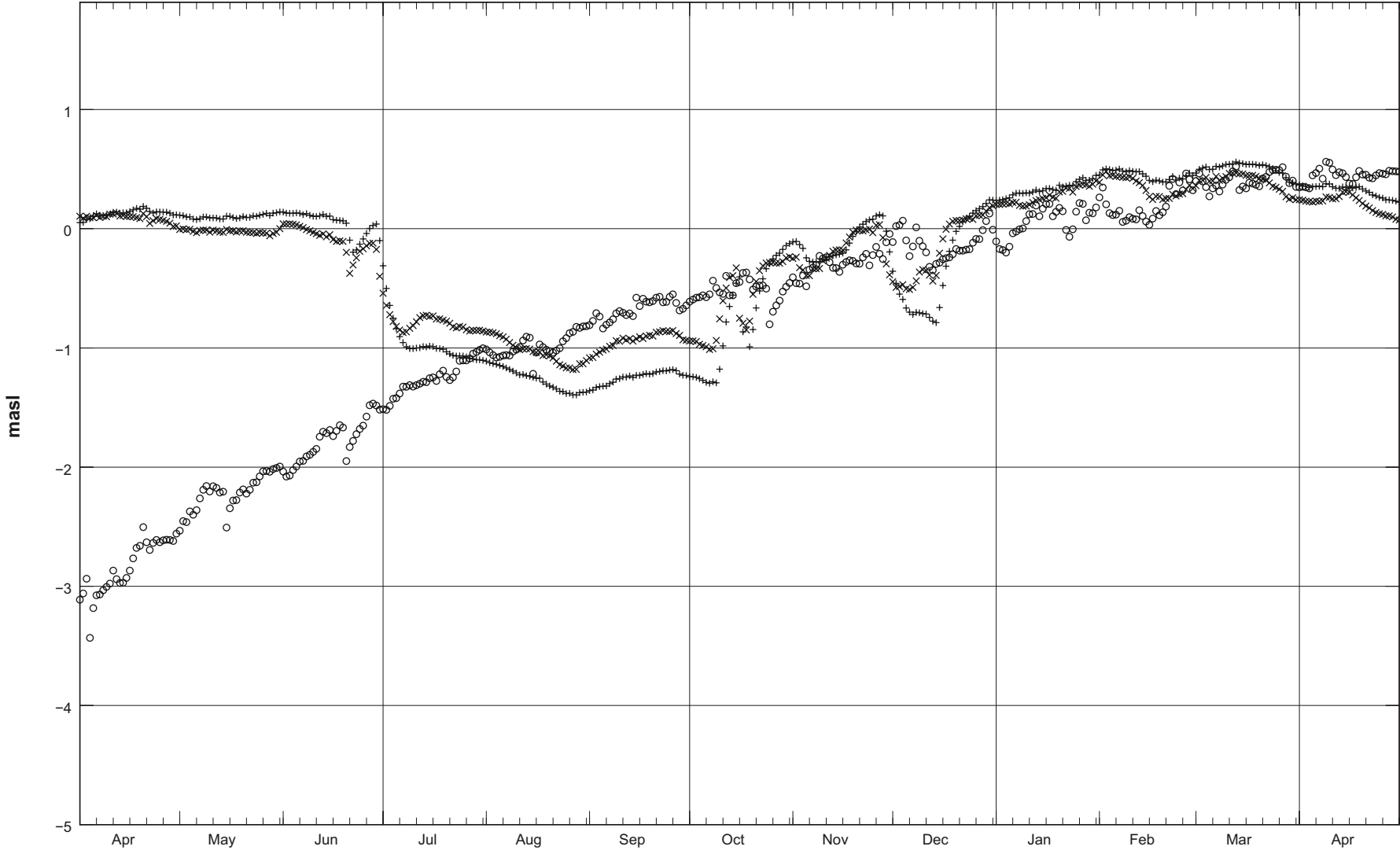


KFM09A



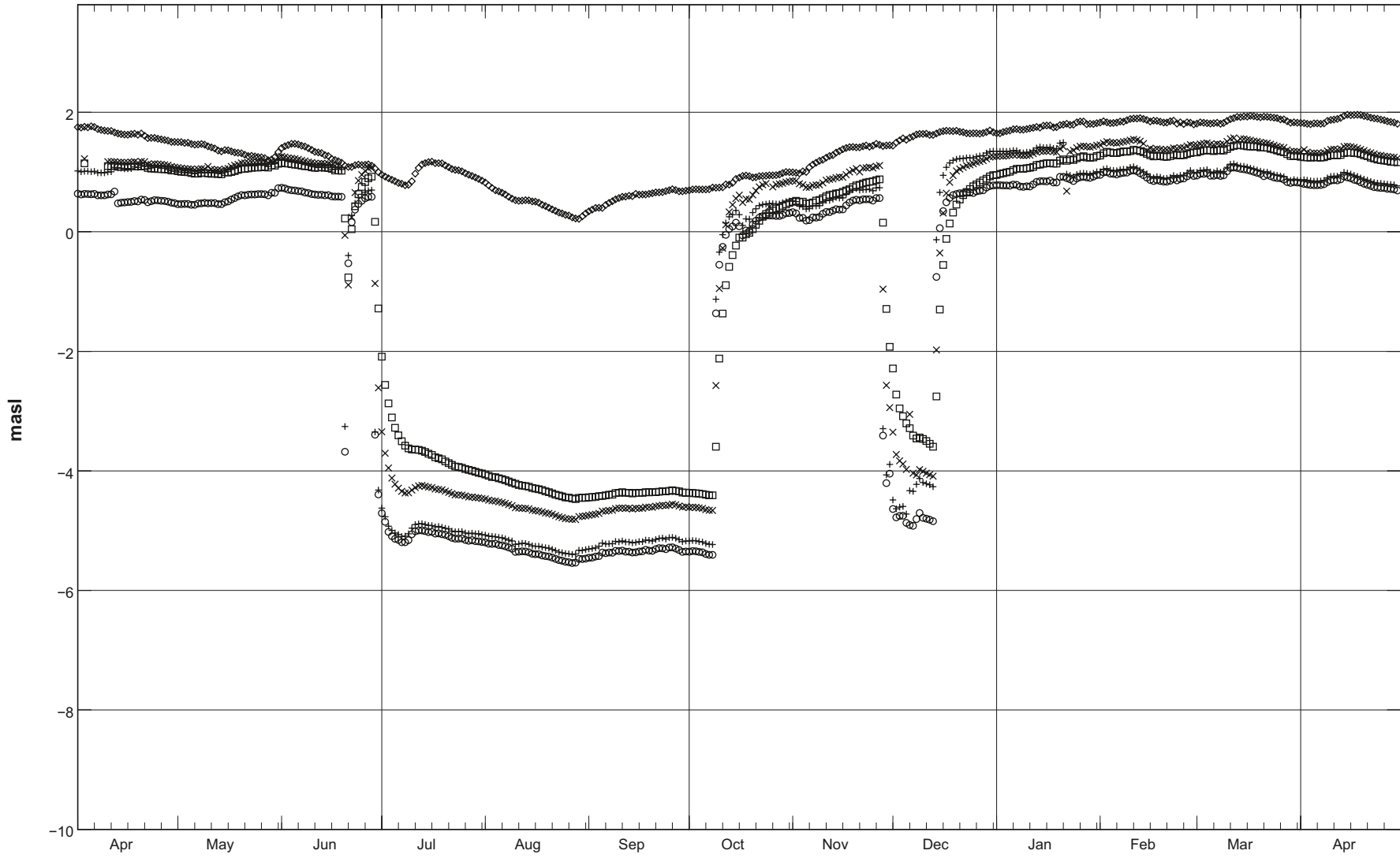
Start: 2007-04-01 month

KFM09B



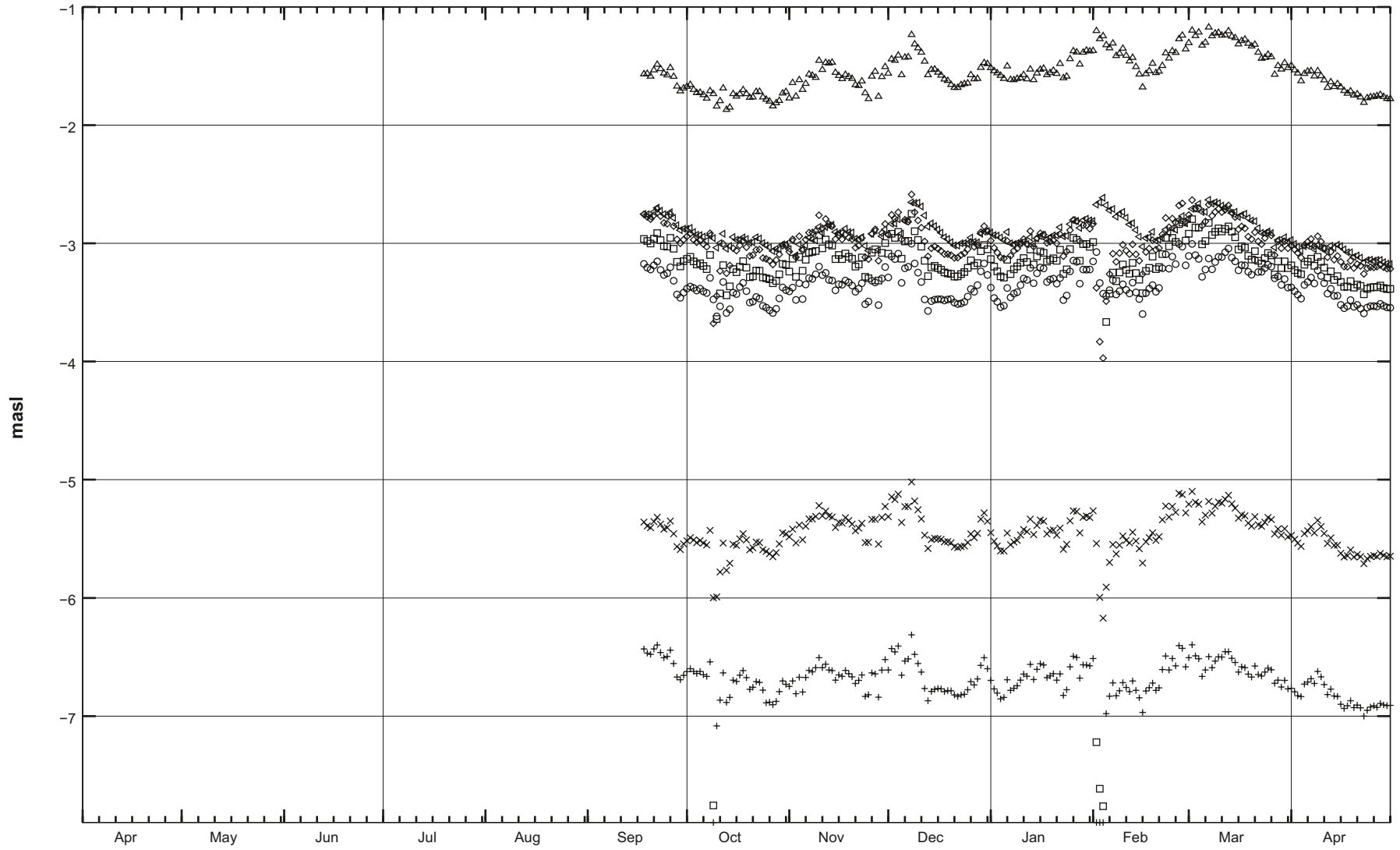
Start: 2007-04-01 month

KFM10A



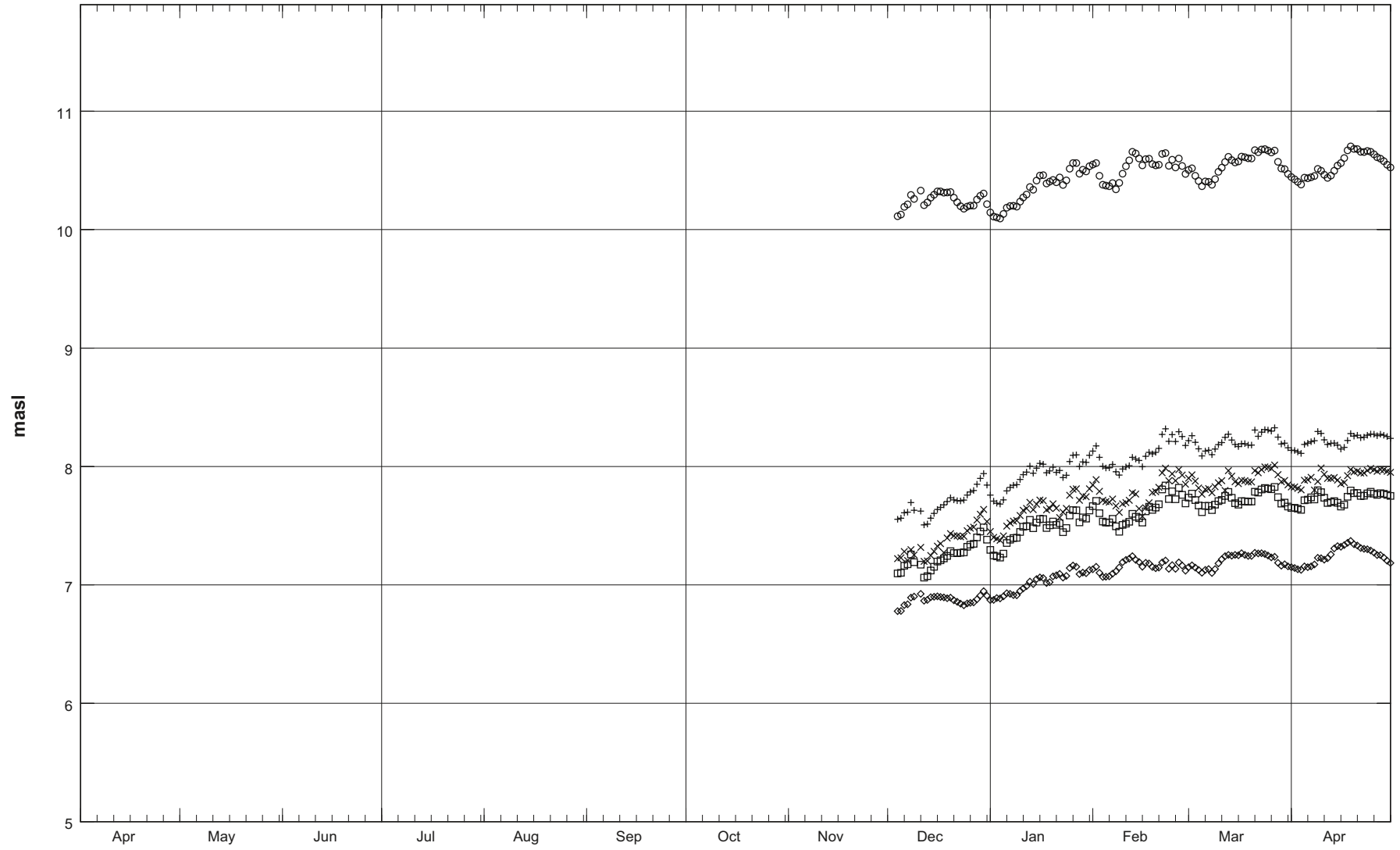
Start: 2007-04-01 month

KFM11A



Start: 2007-04-01 month

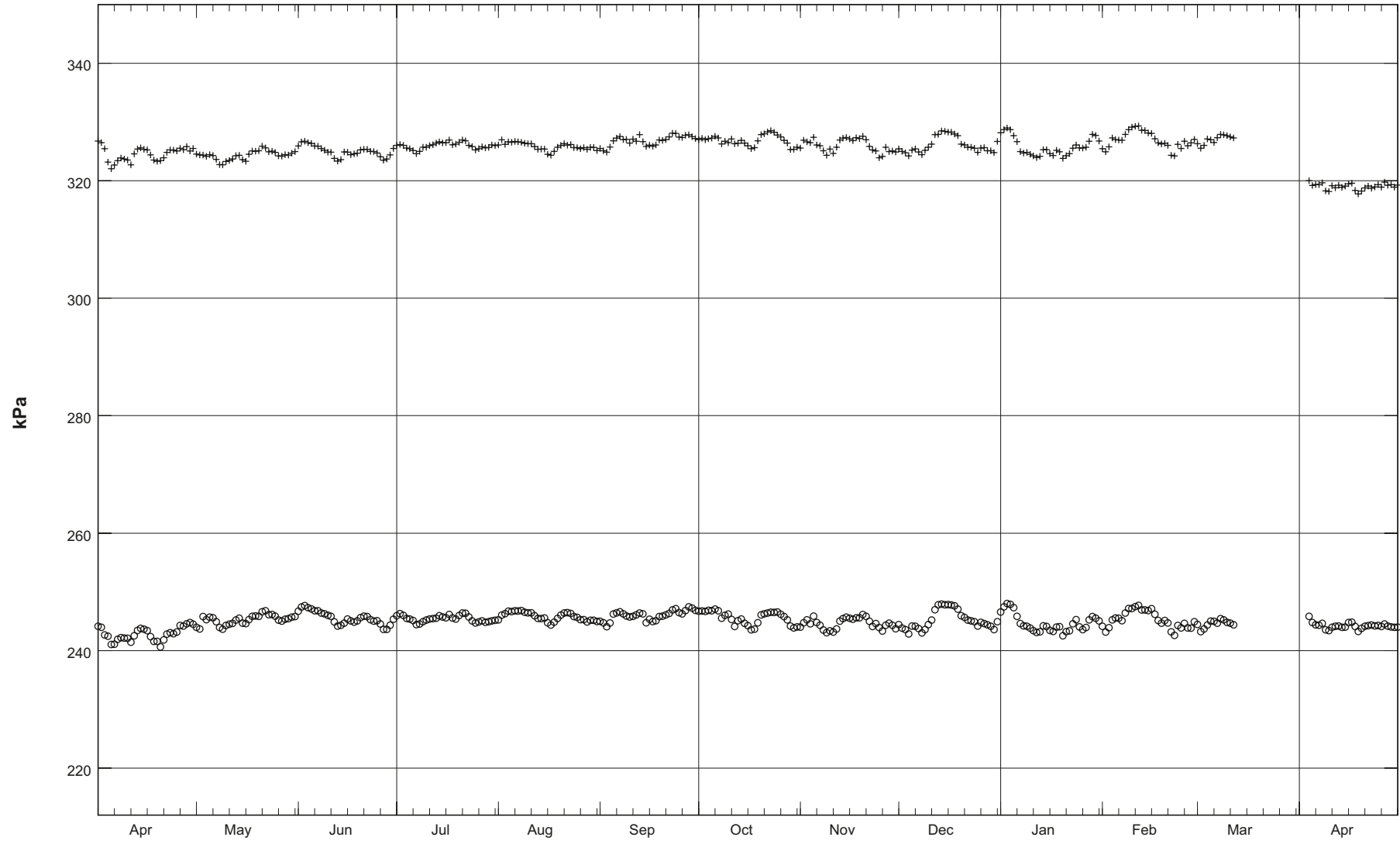
KFM12A



94

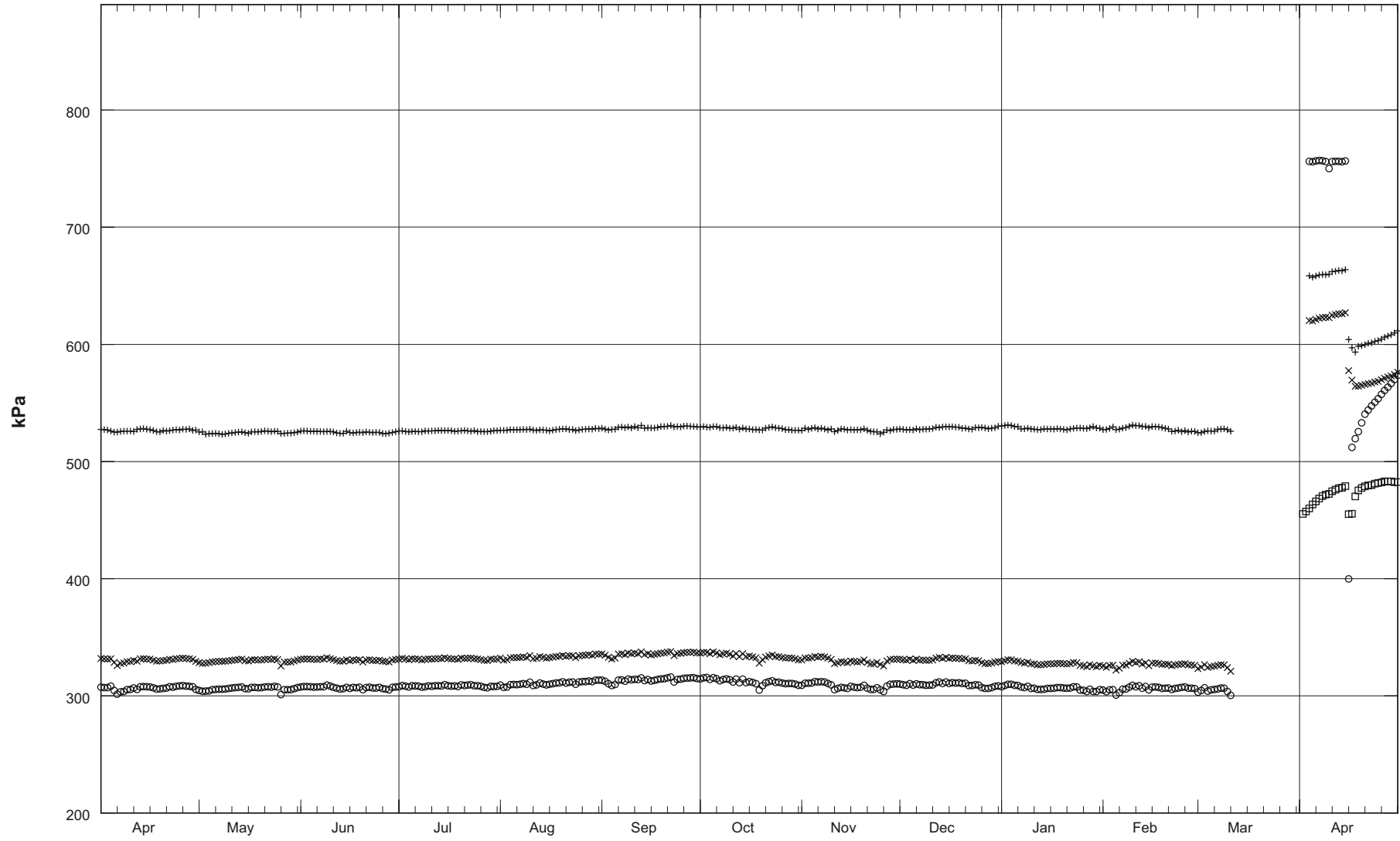
Start: 2007-04-01 month

KFR01



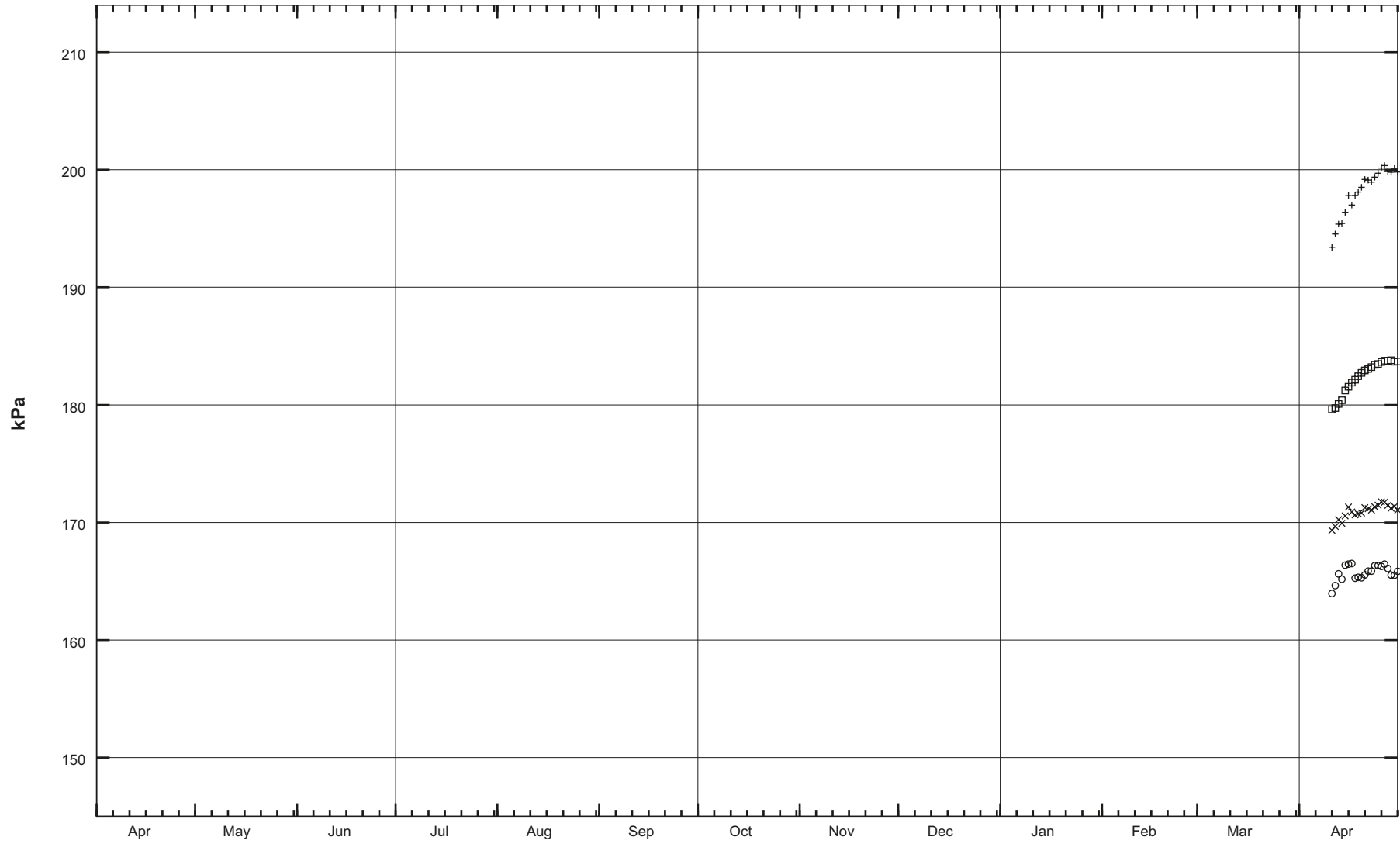
Start: 2007-04-01 month

KFR02



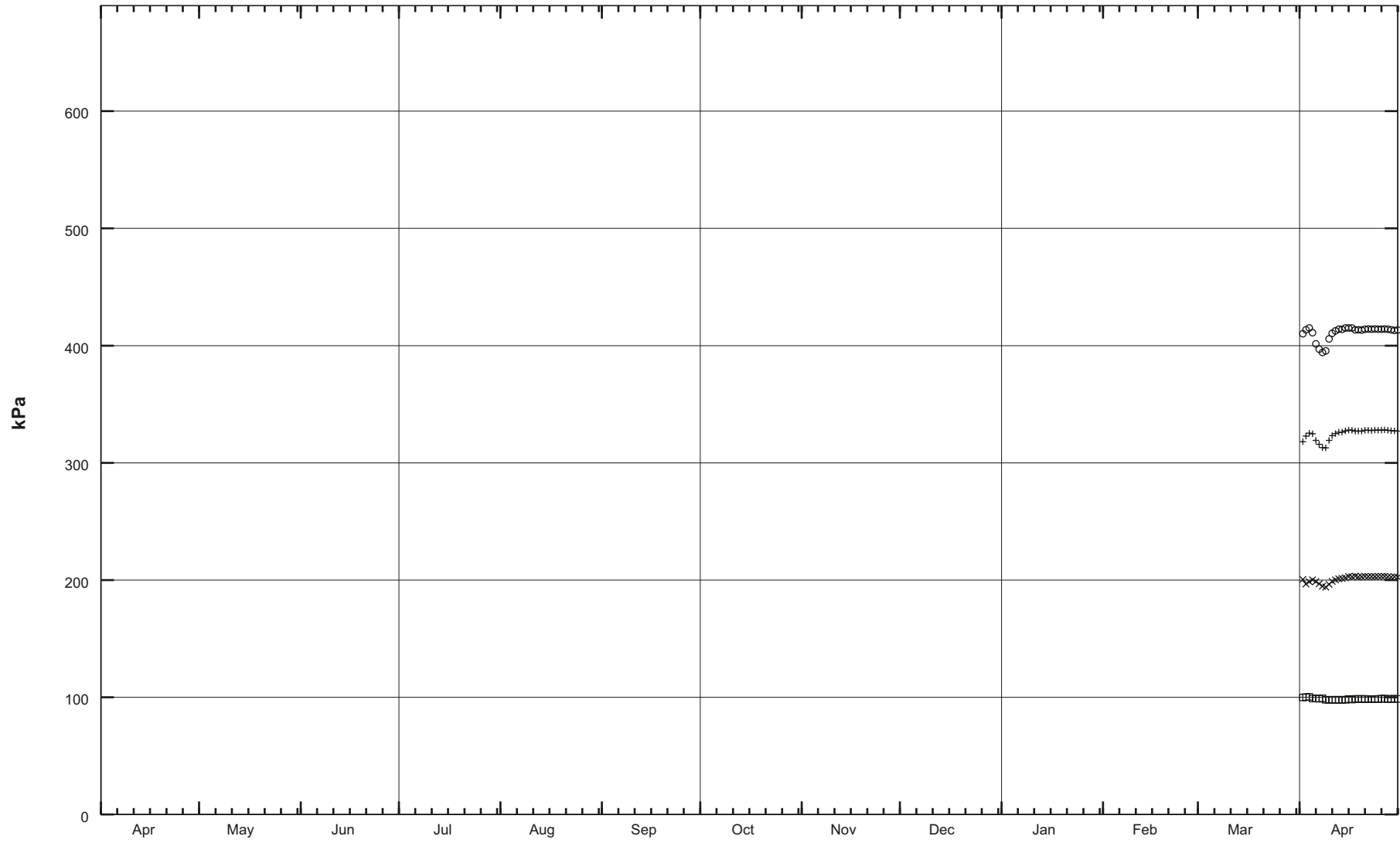
Start: 2007-04-01 month

KFR03



Start: 2007-04-01 month

KFR04

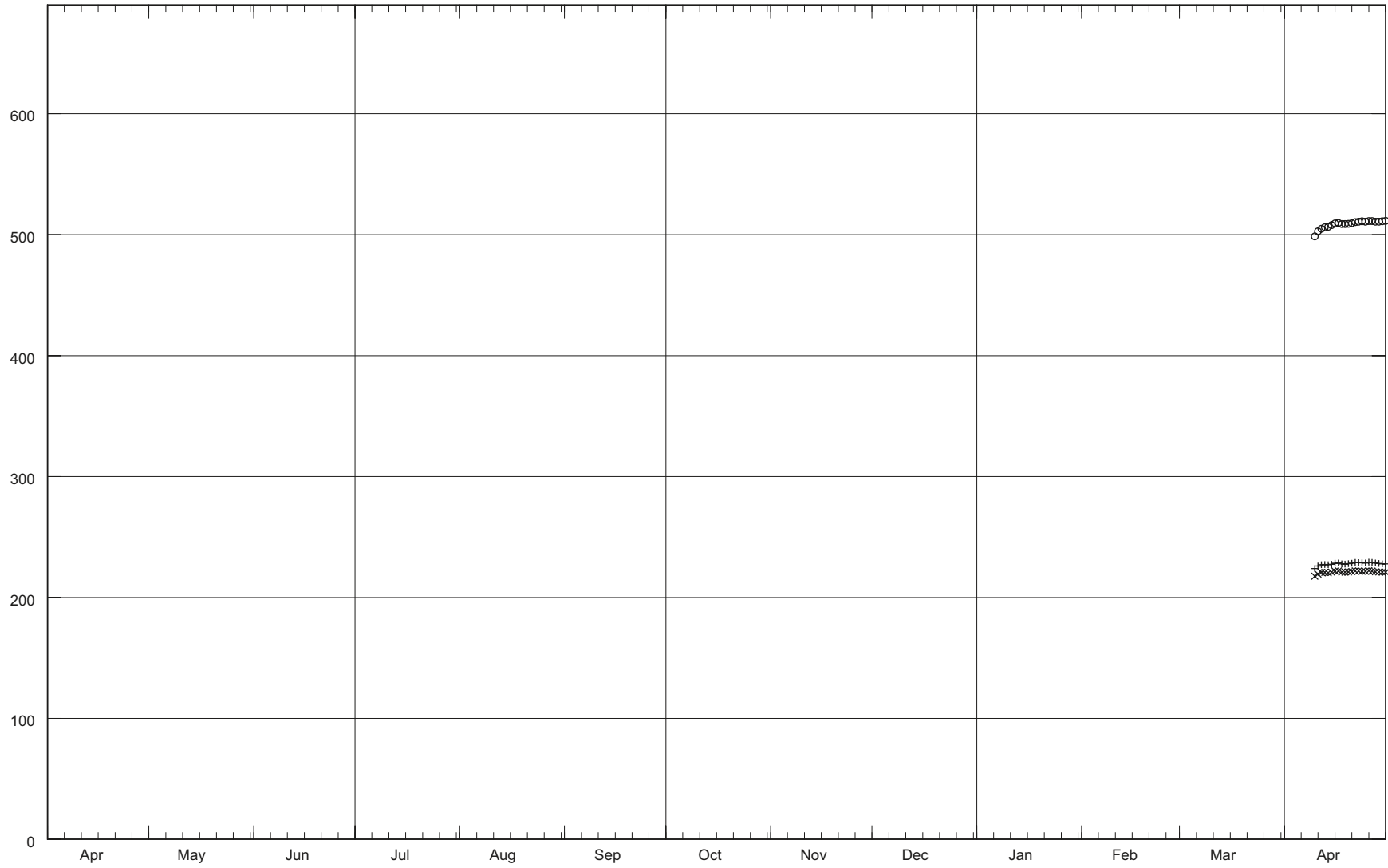


Start: 2007-04-01 month

KFR7A

100

kPa

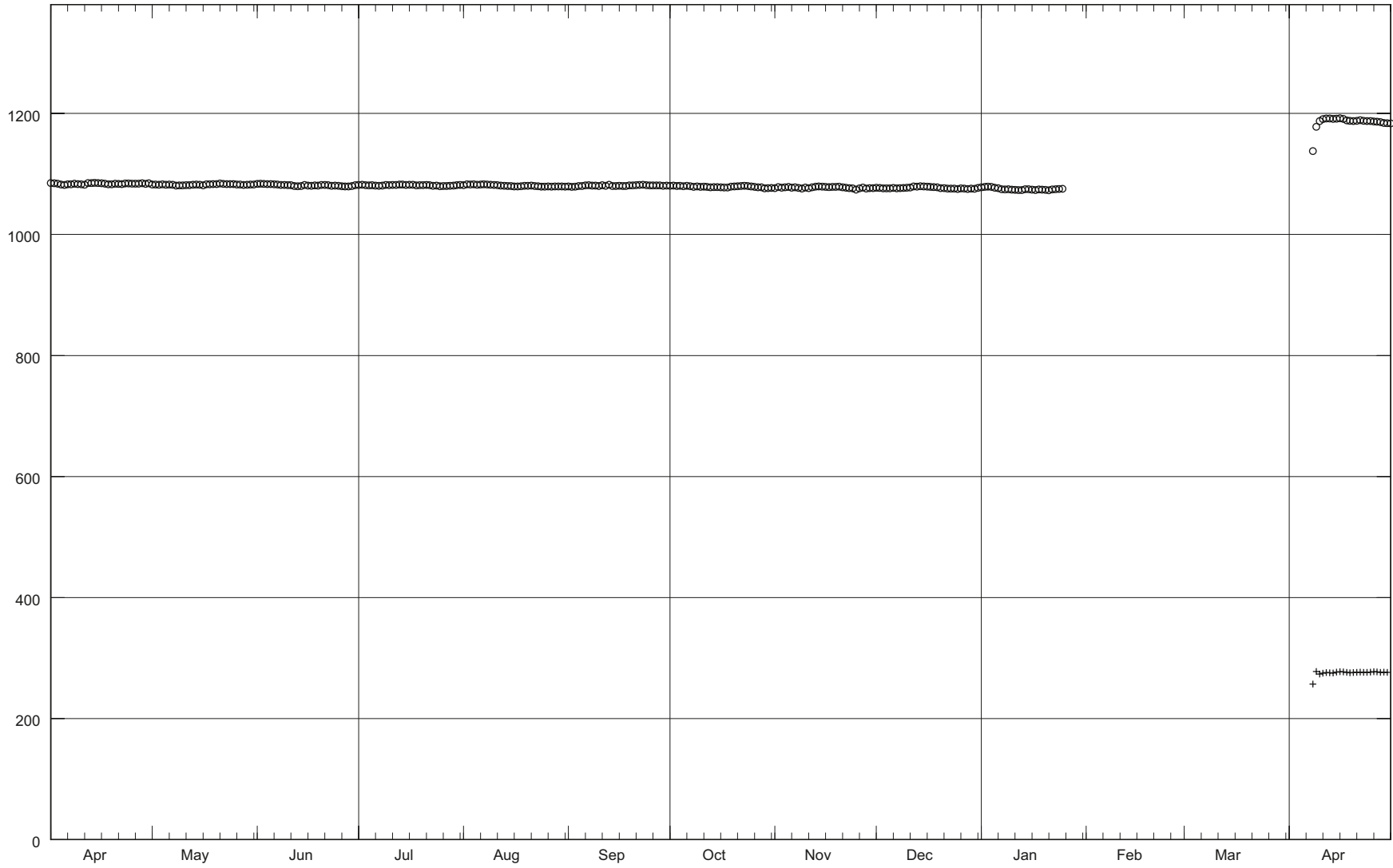


Start: 2007-04-01 month

KFR7B

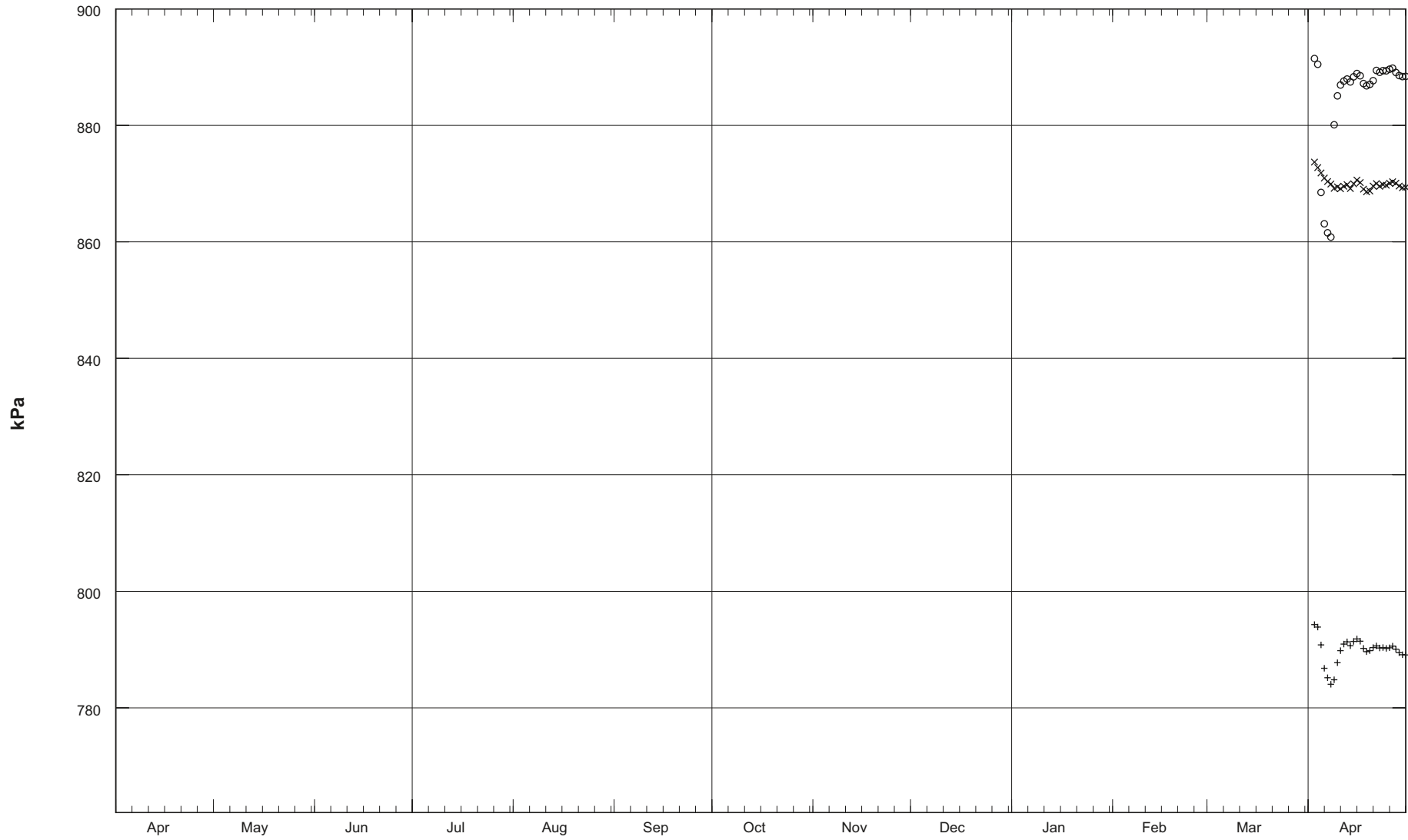
101

kPa

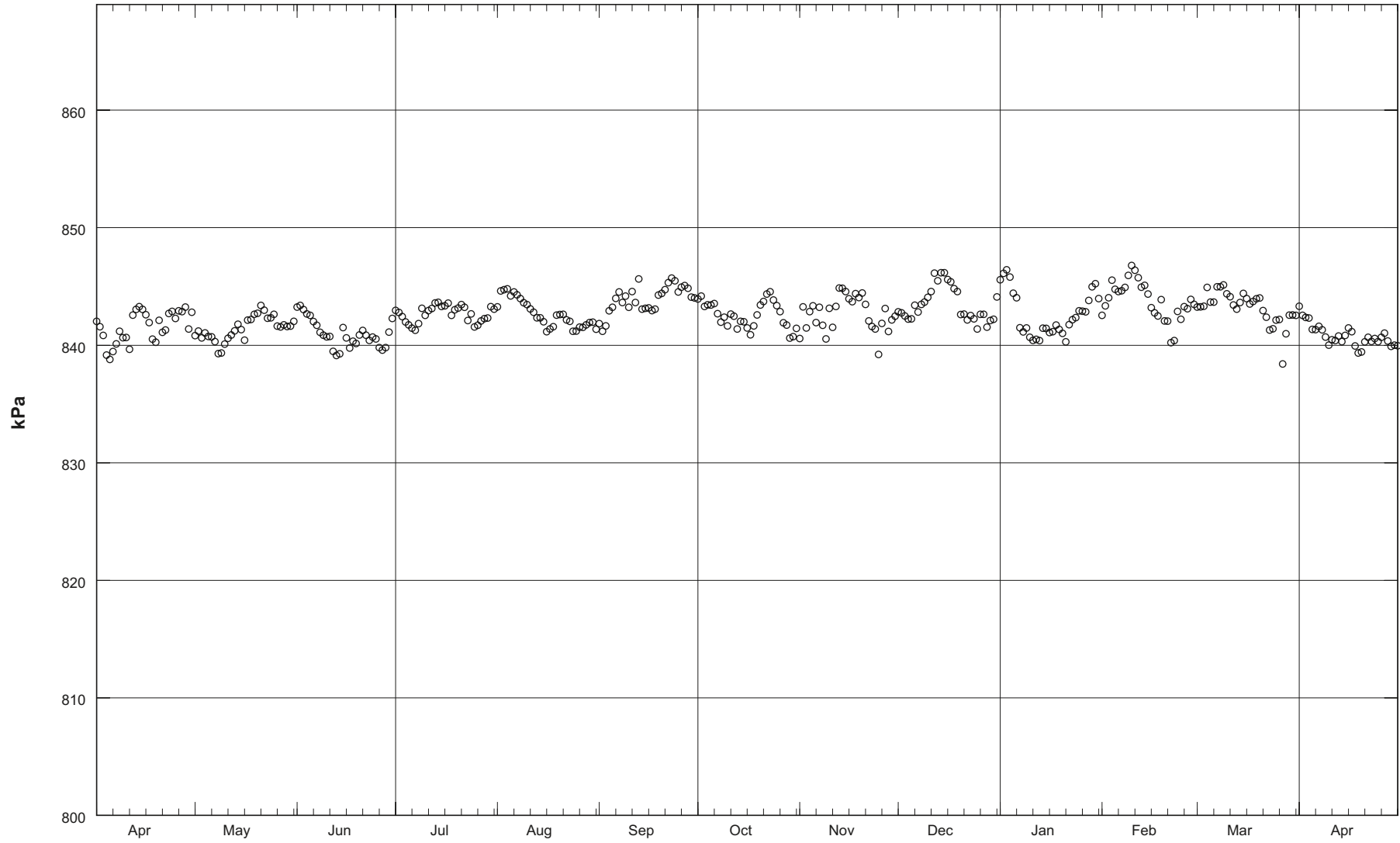


Start: 2007-04-01 month

KFR08



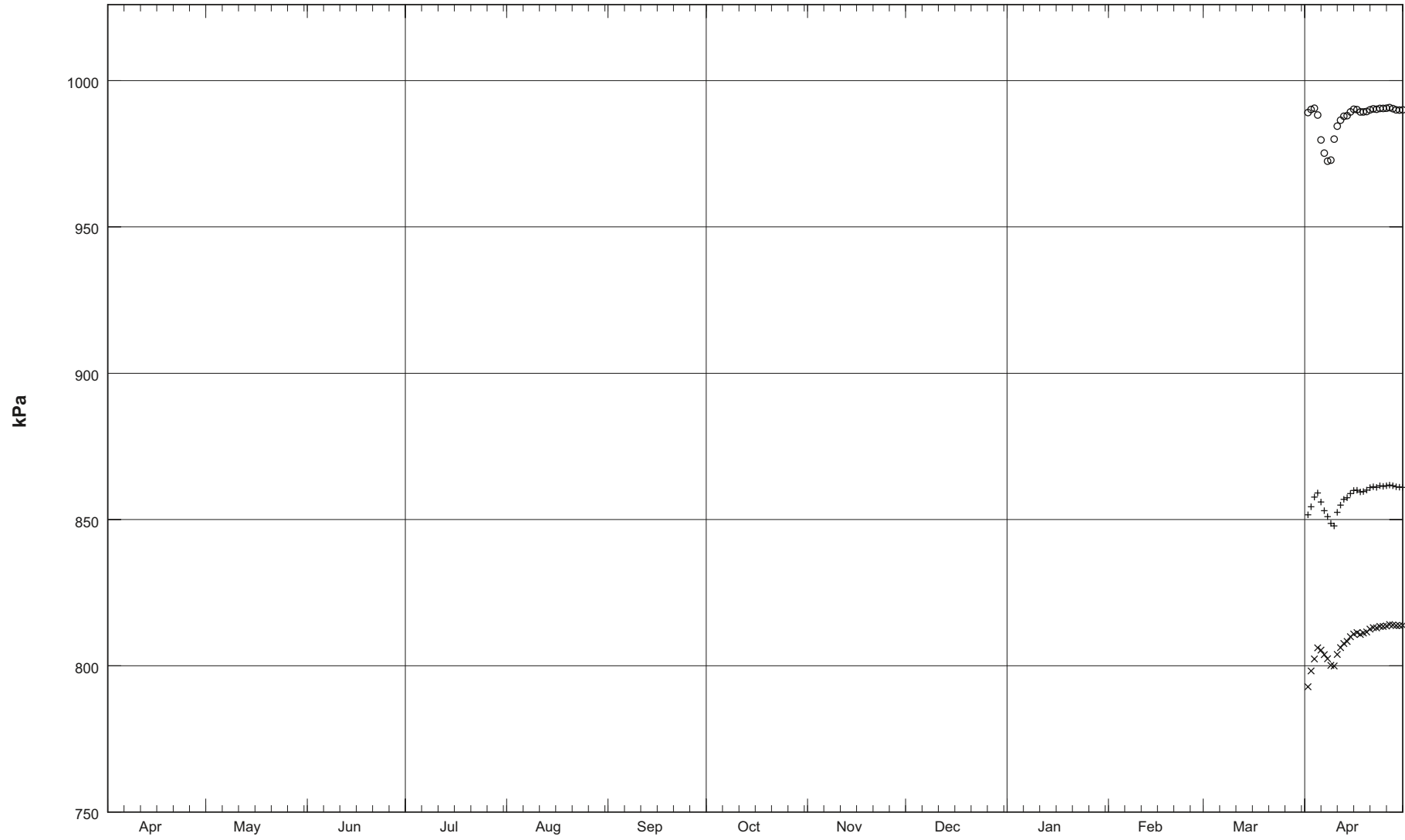
KFR09



103

Start: 2007-04-01 month

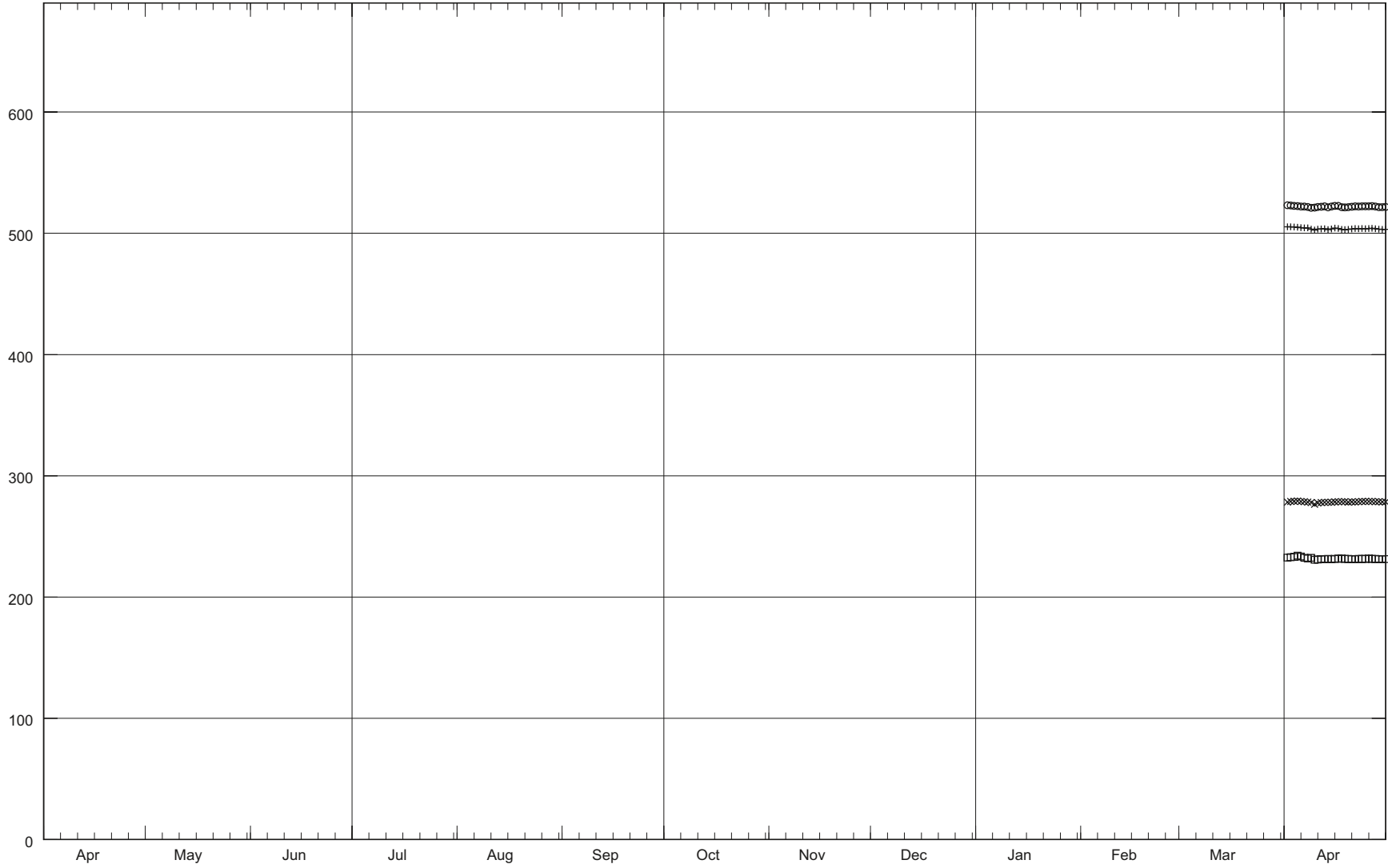
KFR13



KFR19

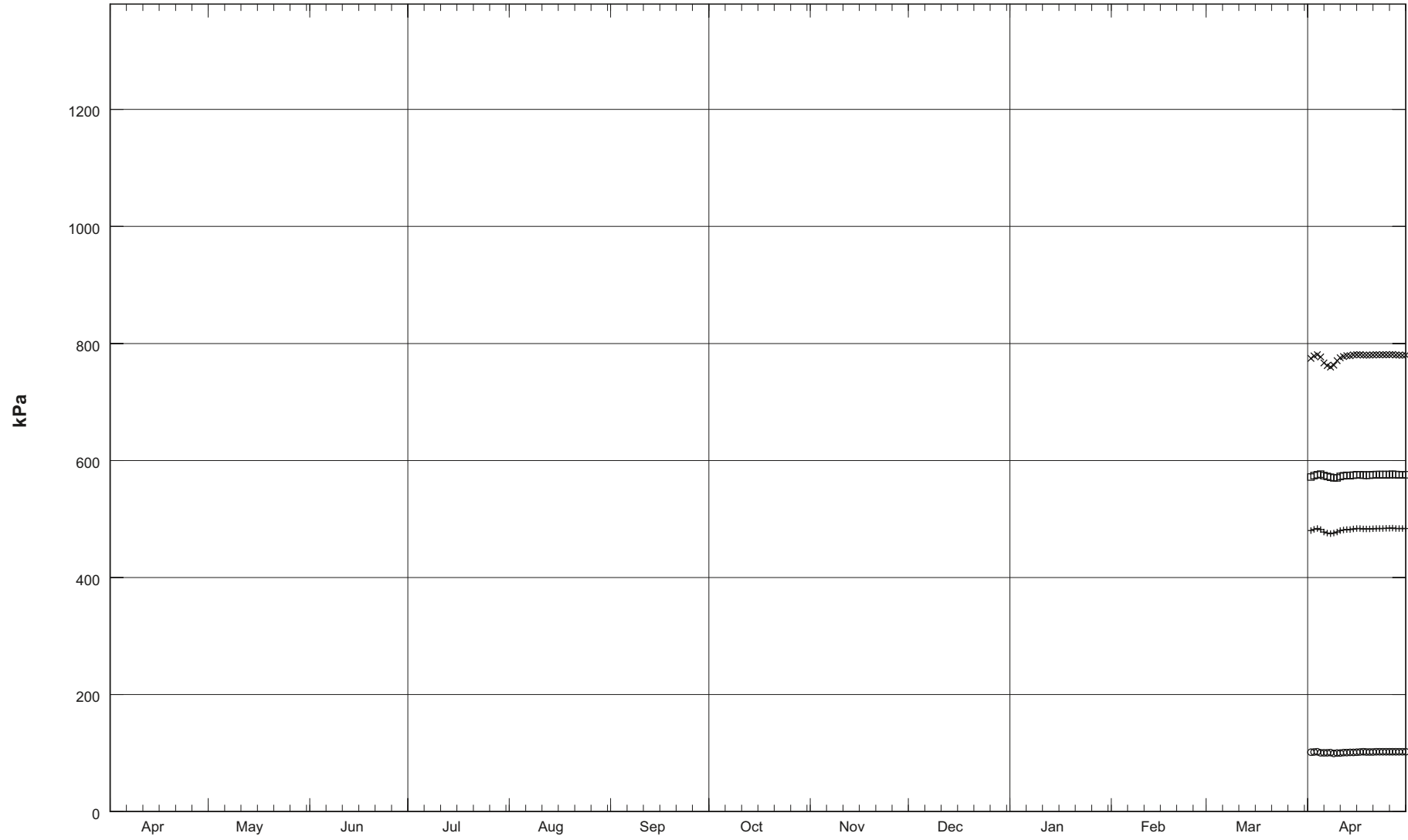
105

kPa

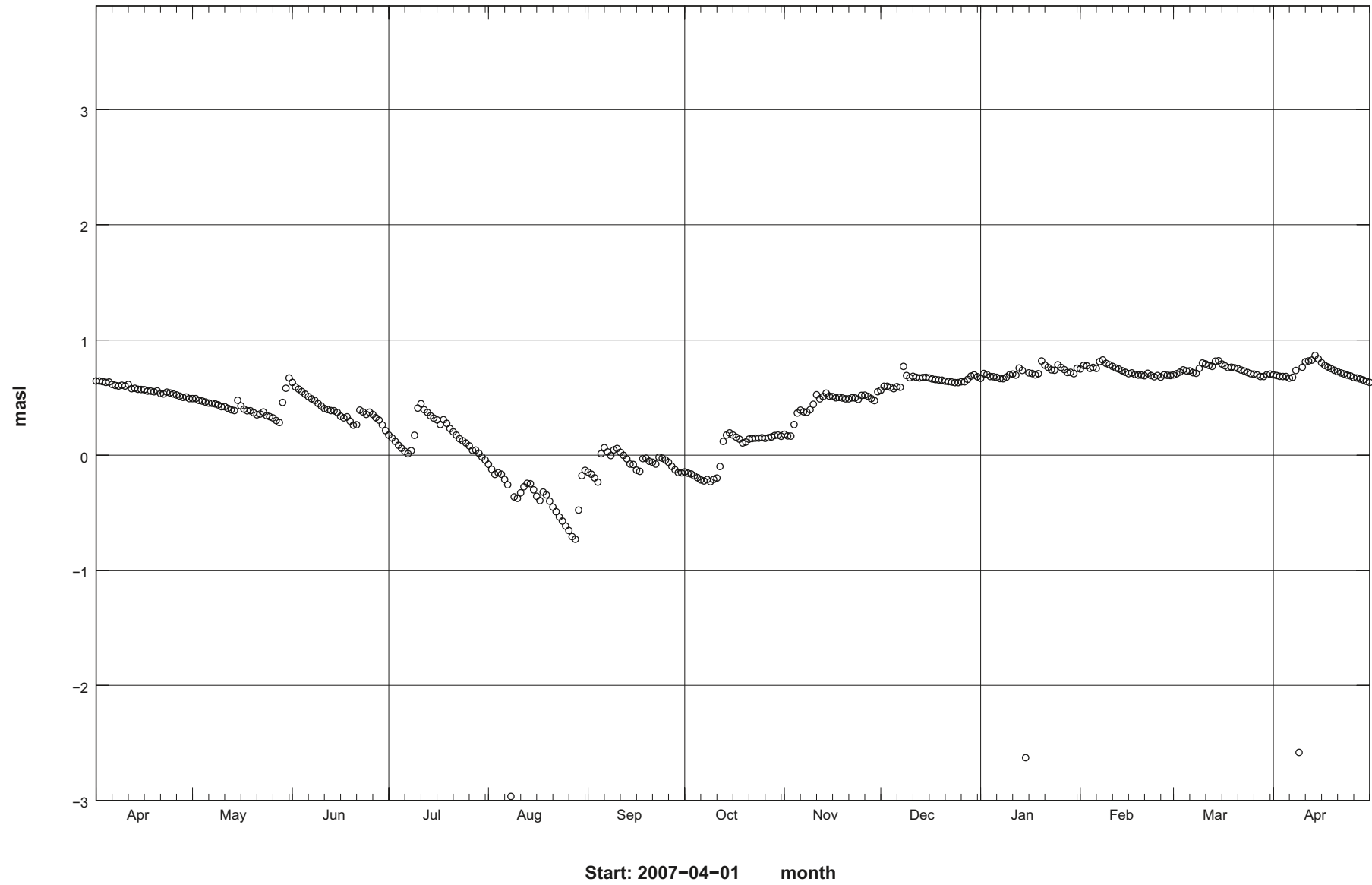


Start: 2007-04-01 month

KFR55

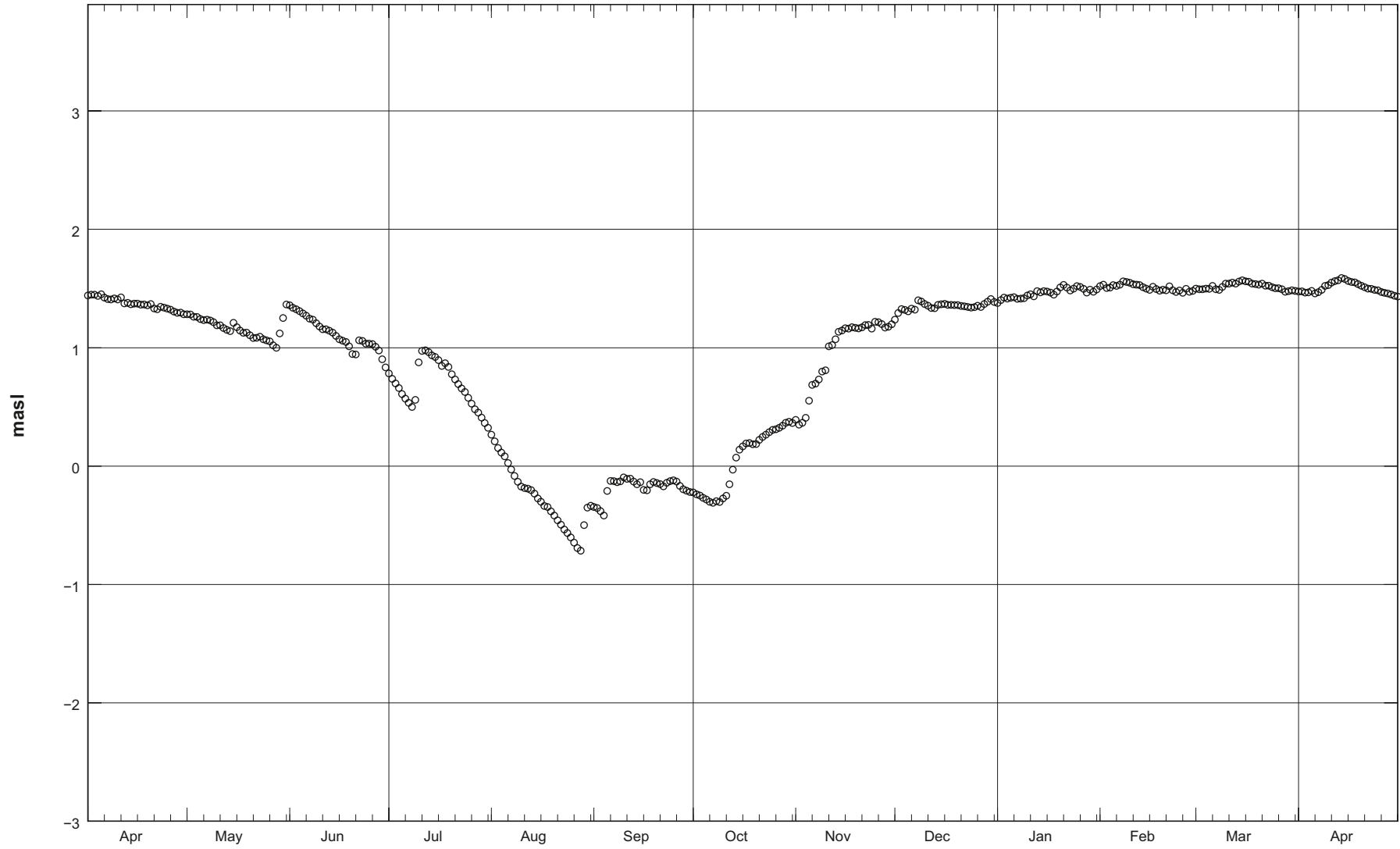


SFM0001



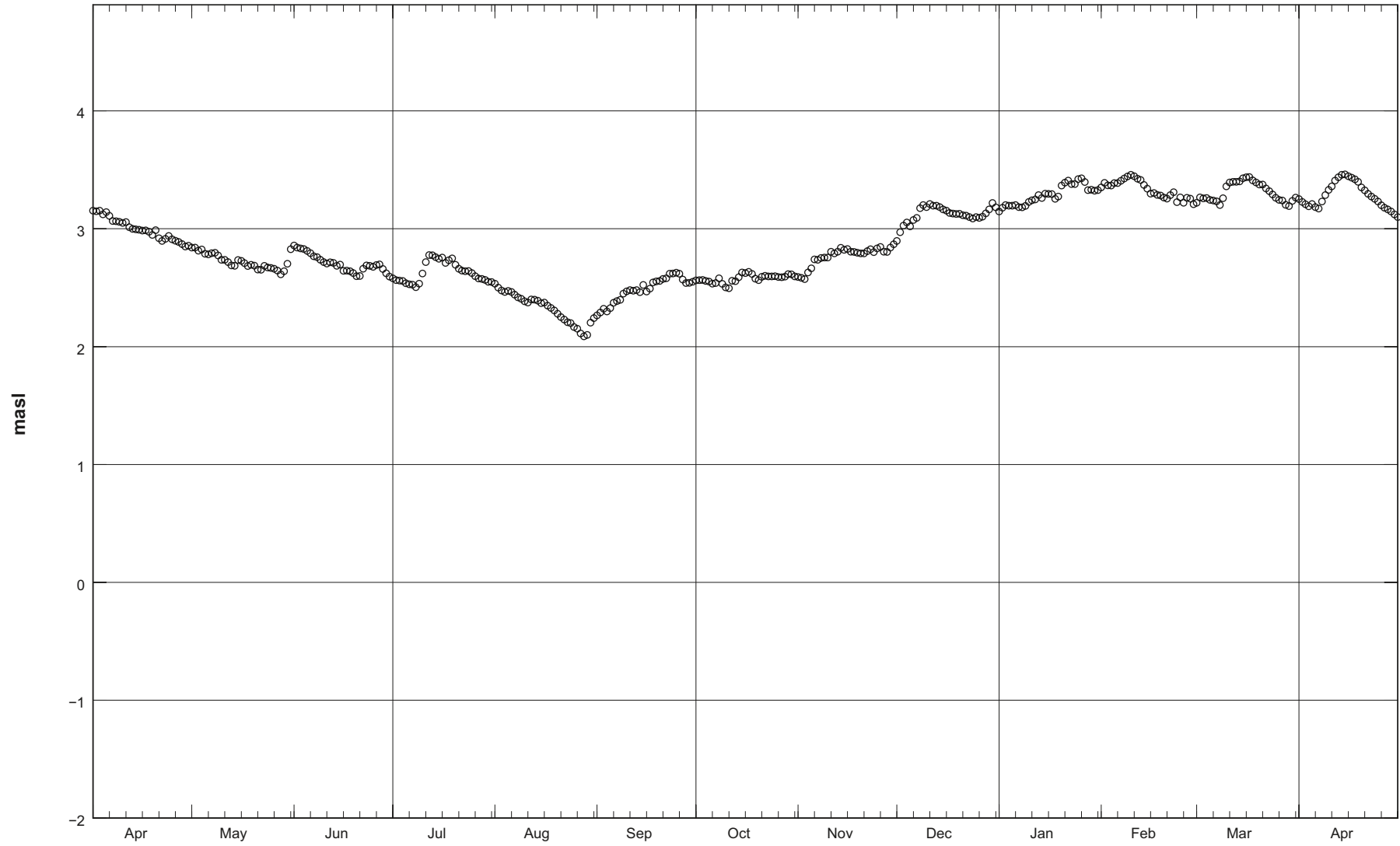
SFM0003

109



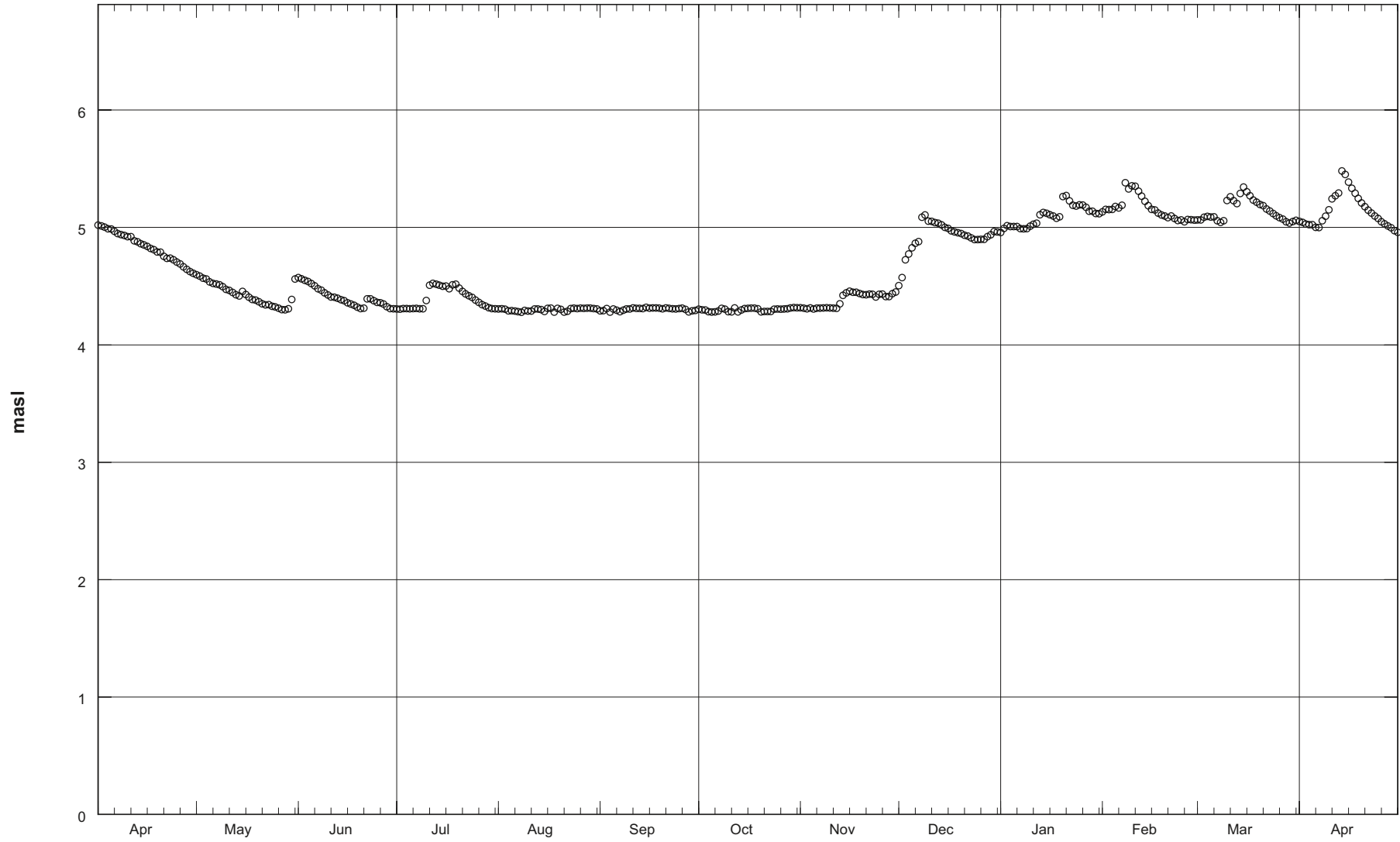
Start: 2007-04-01 month

SFM0004

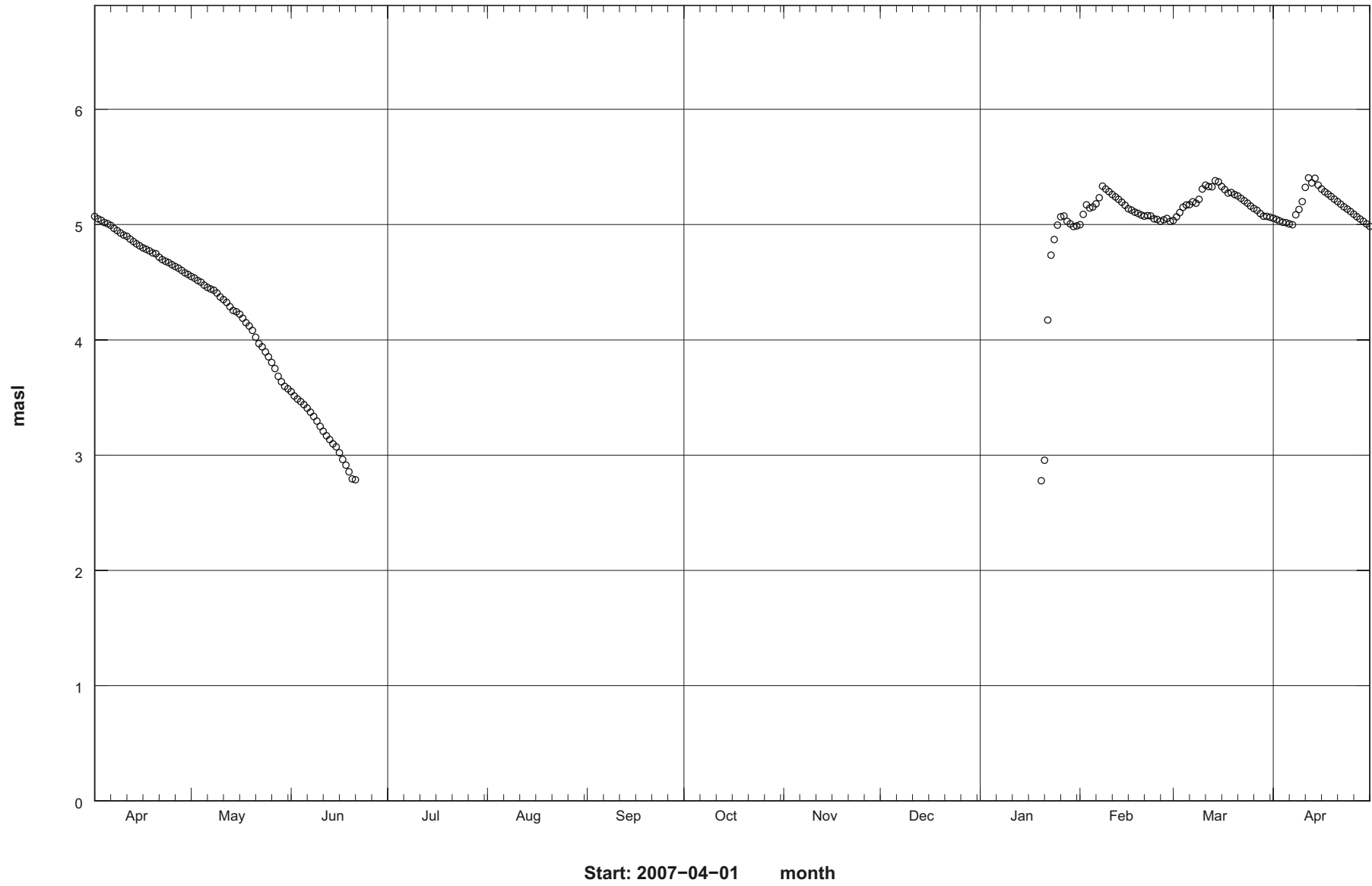


Start: 2007-04-01 month

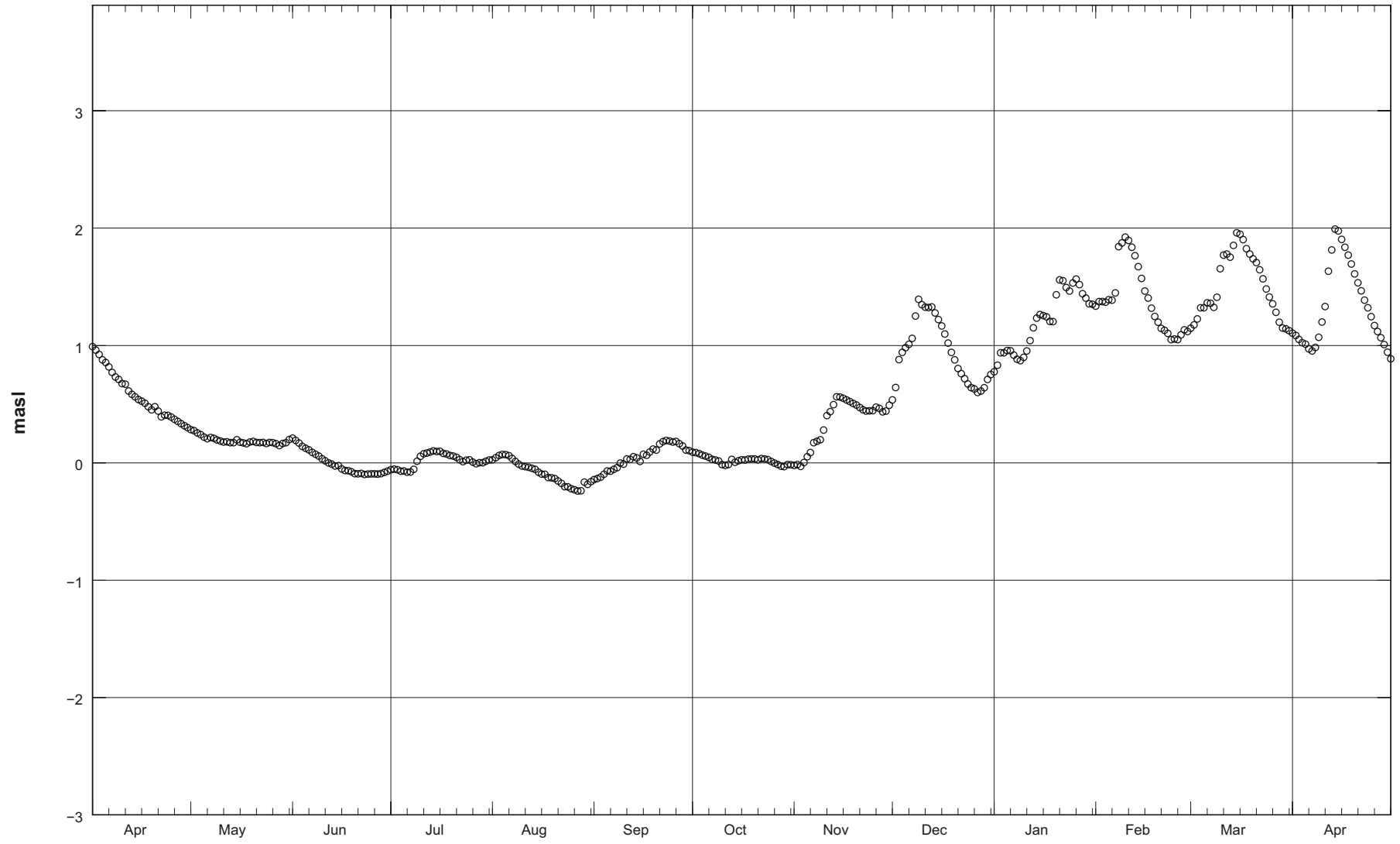
SFM0005



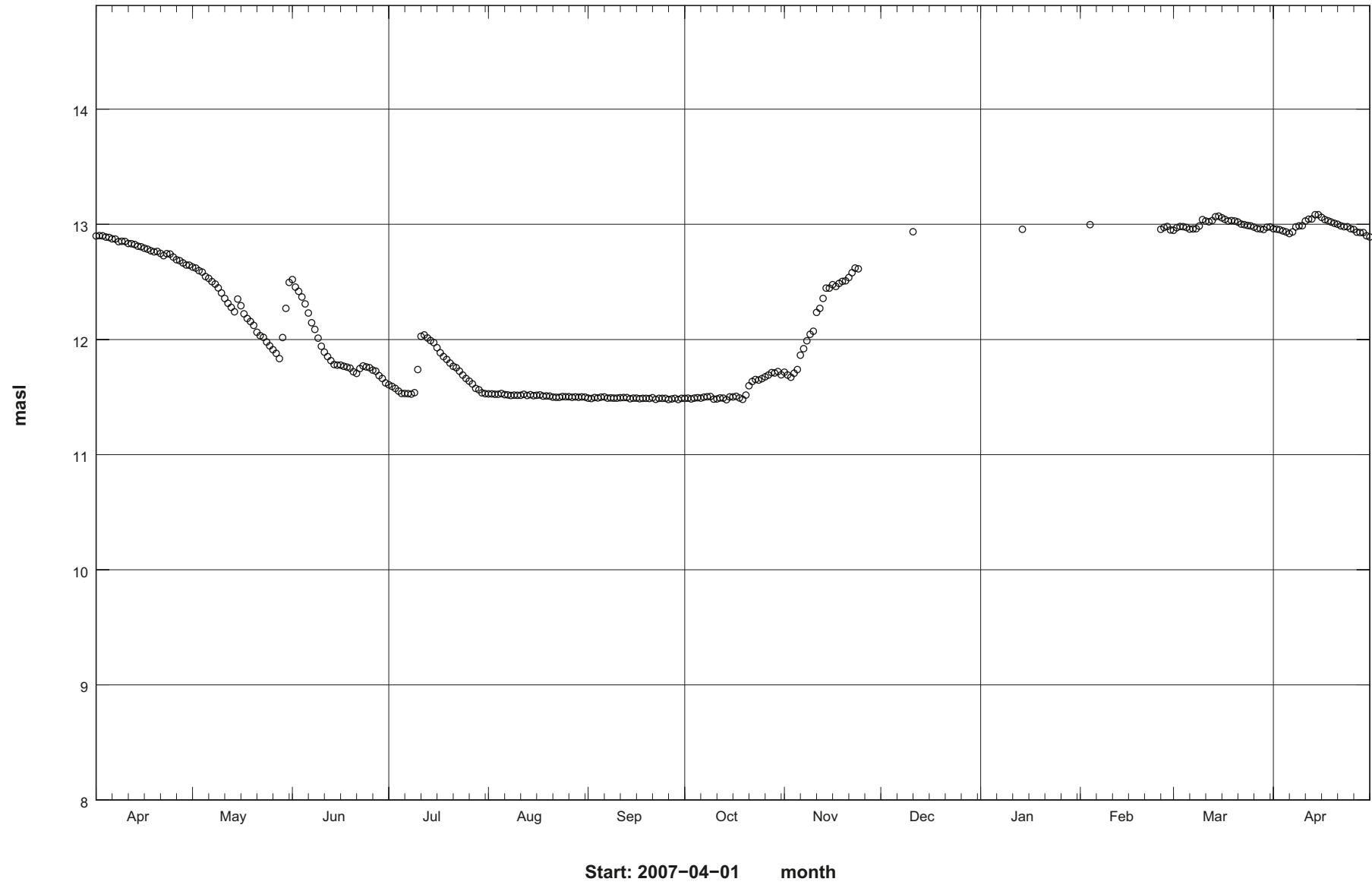
SFM0006



SFM0008

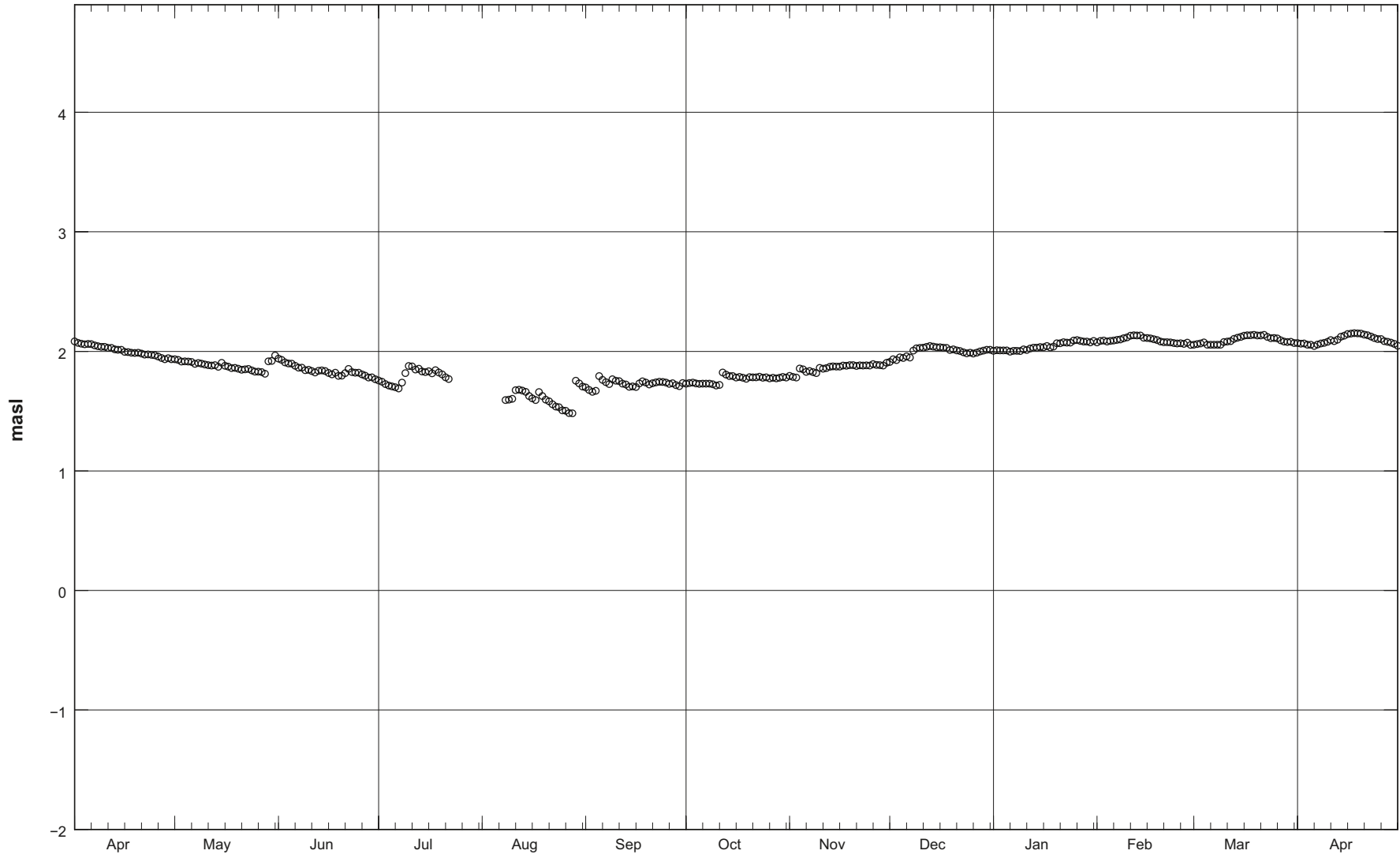


SFM0010



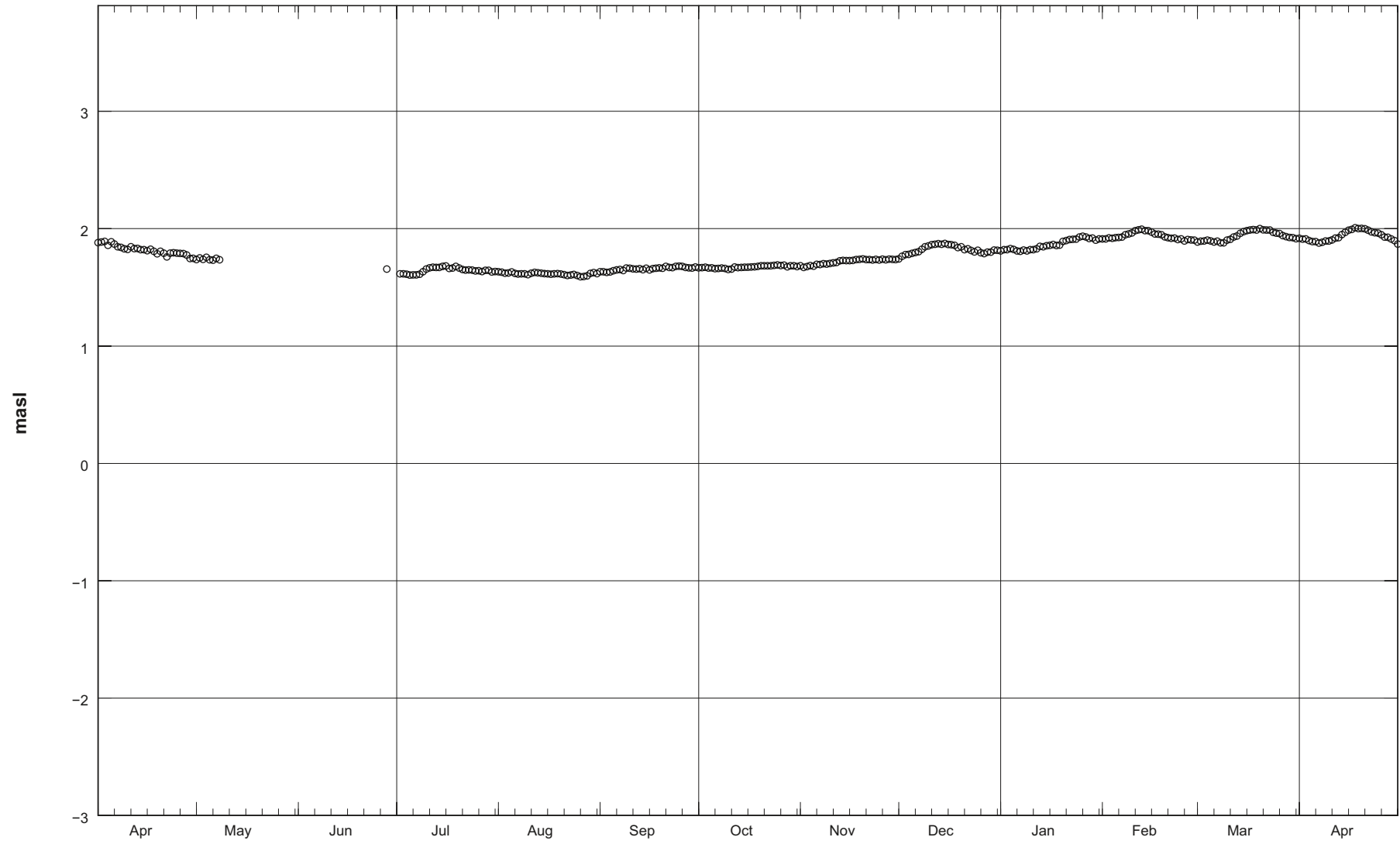
SFM0011

115



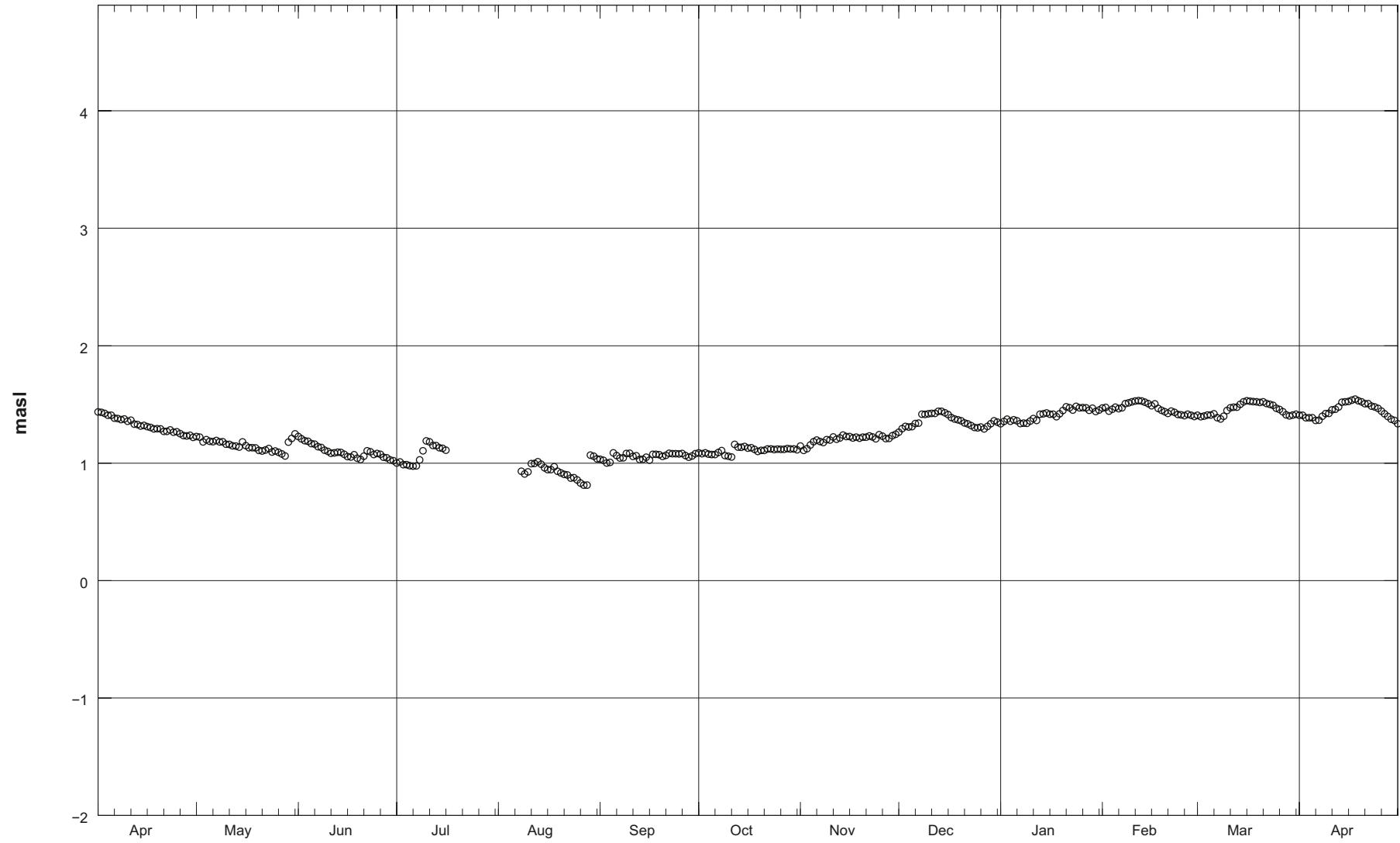
Start: 2007-04-01 month

SFM0012



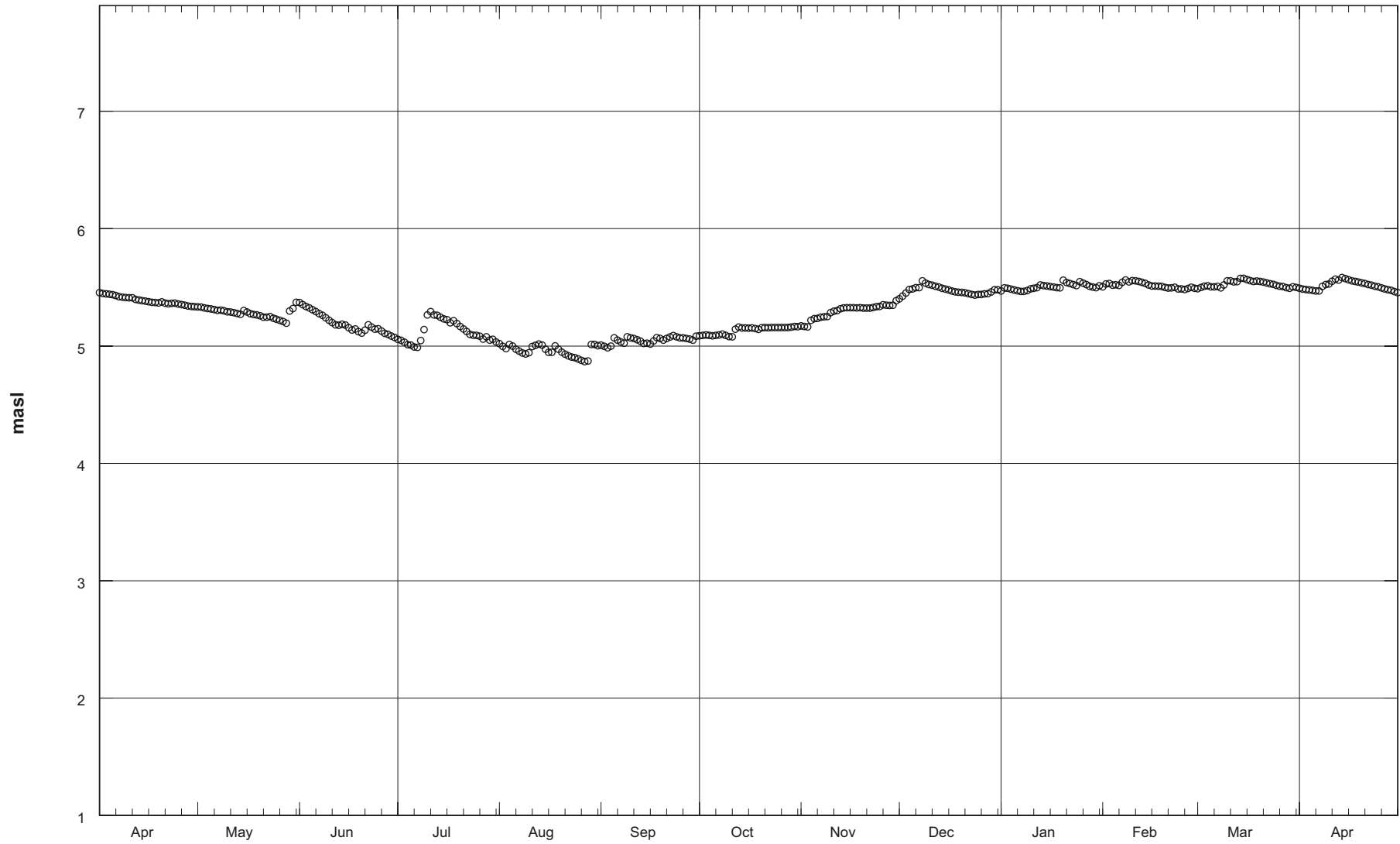
Start: 2007-04-01 month

SFM0013



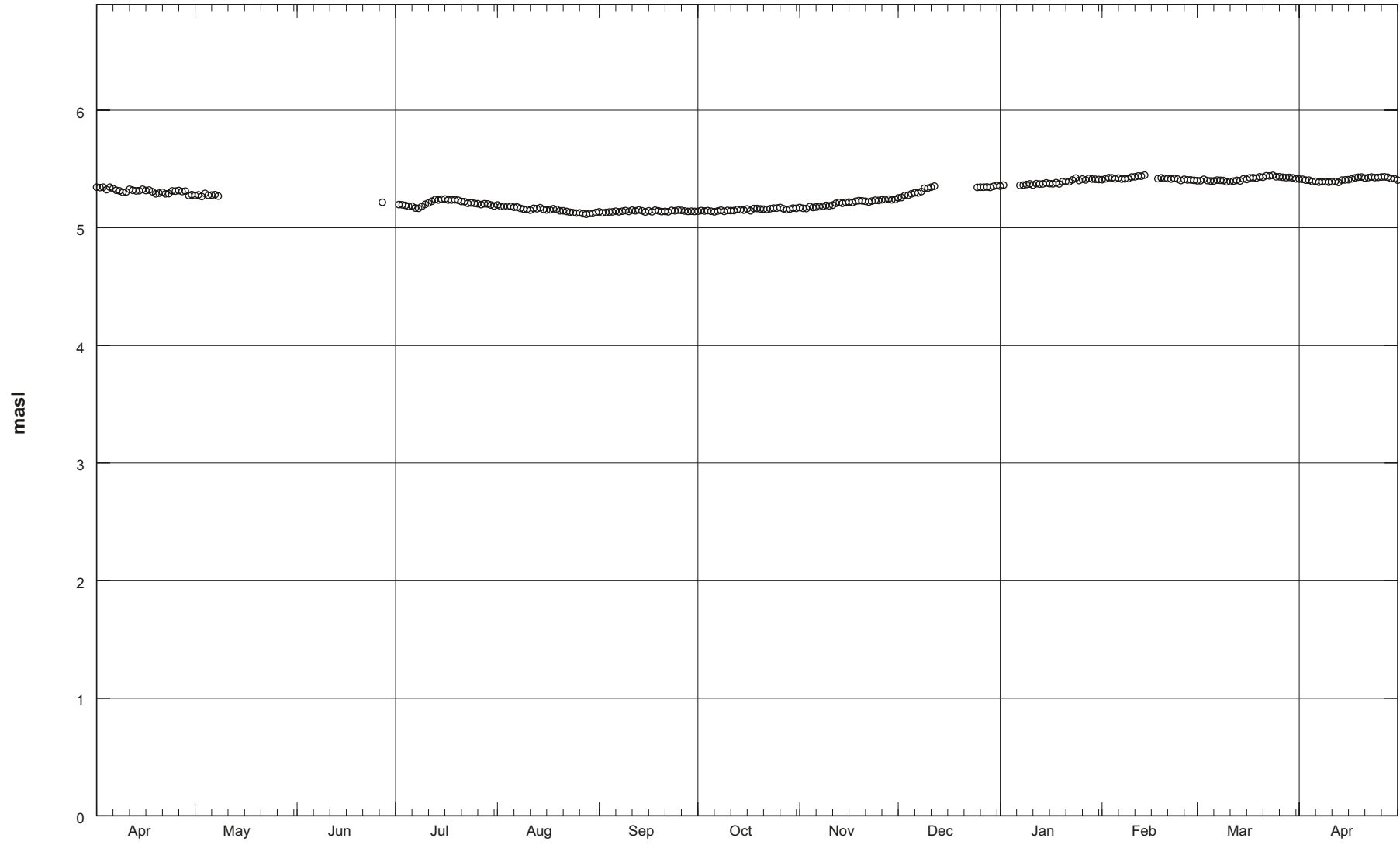
Start: 2007-04-01 month

SFM0014

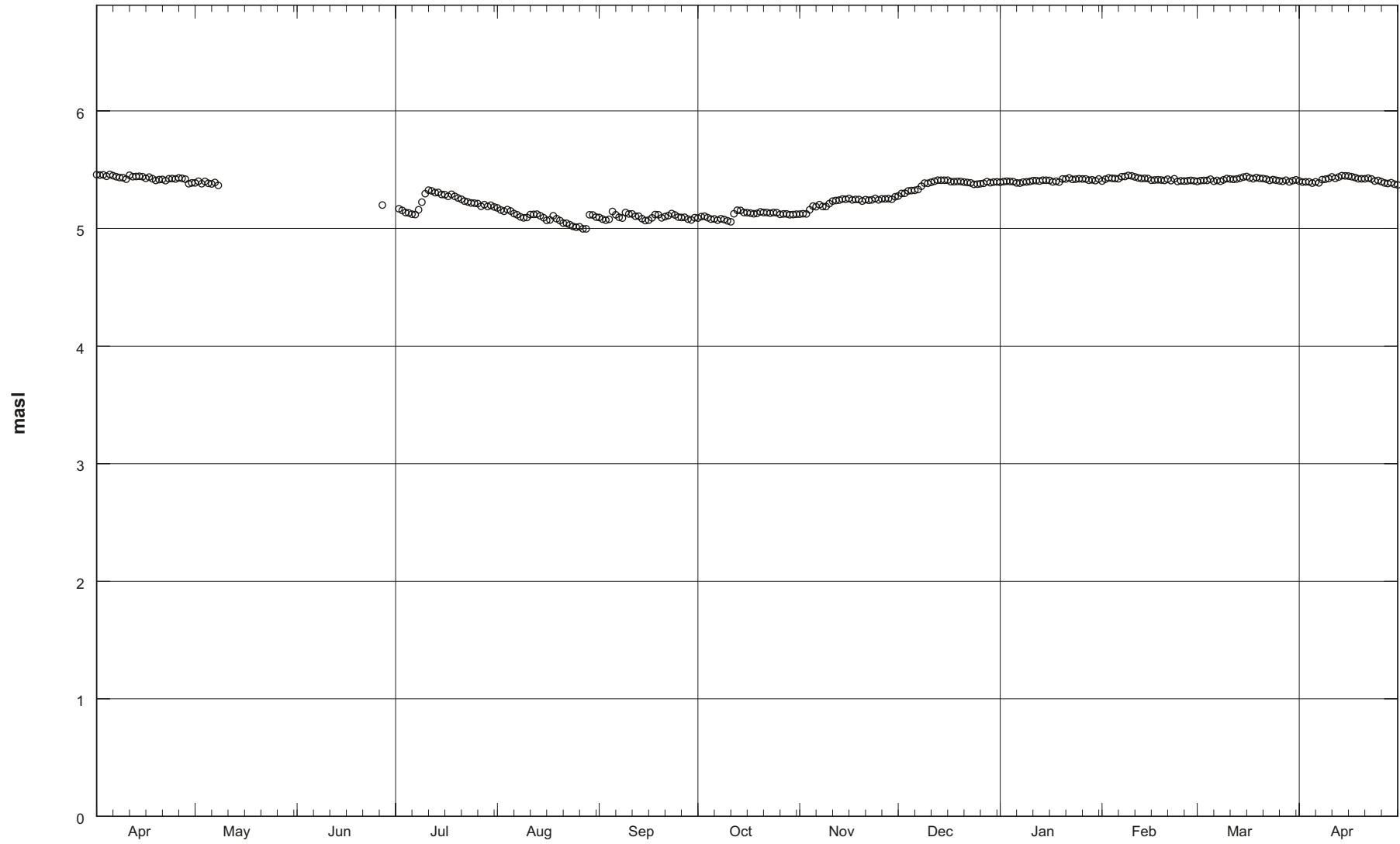


Start: 2007-04-01 month

SFM0015

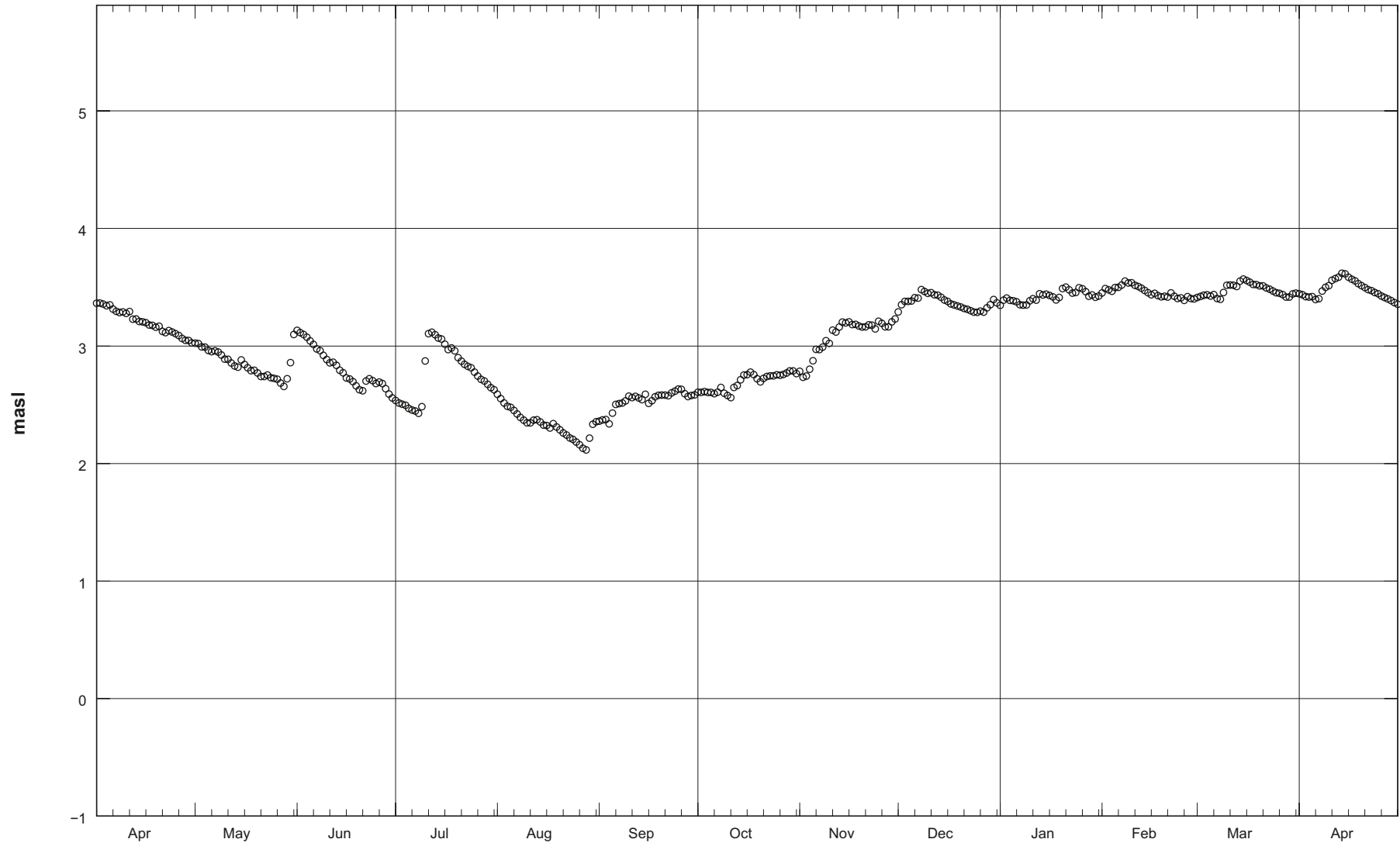


SFM0017

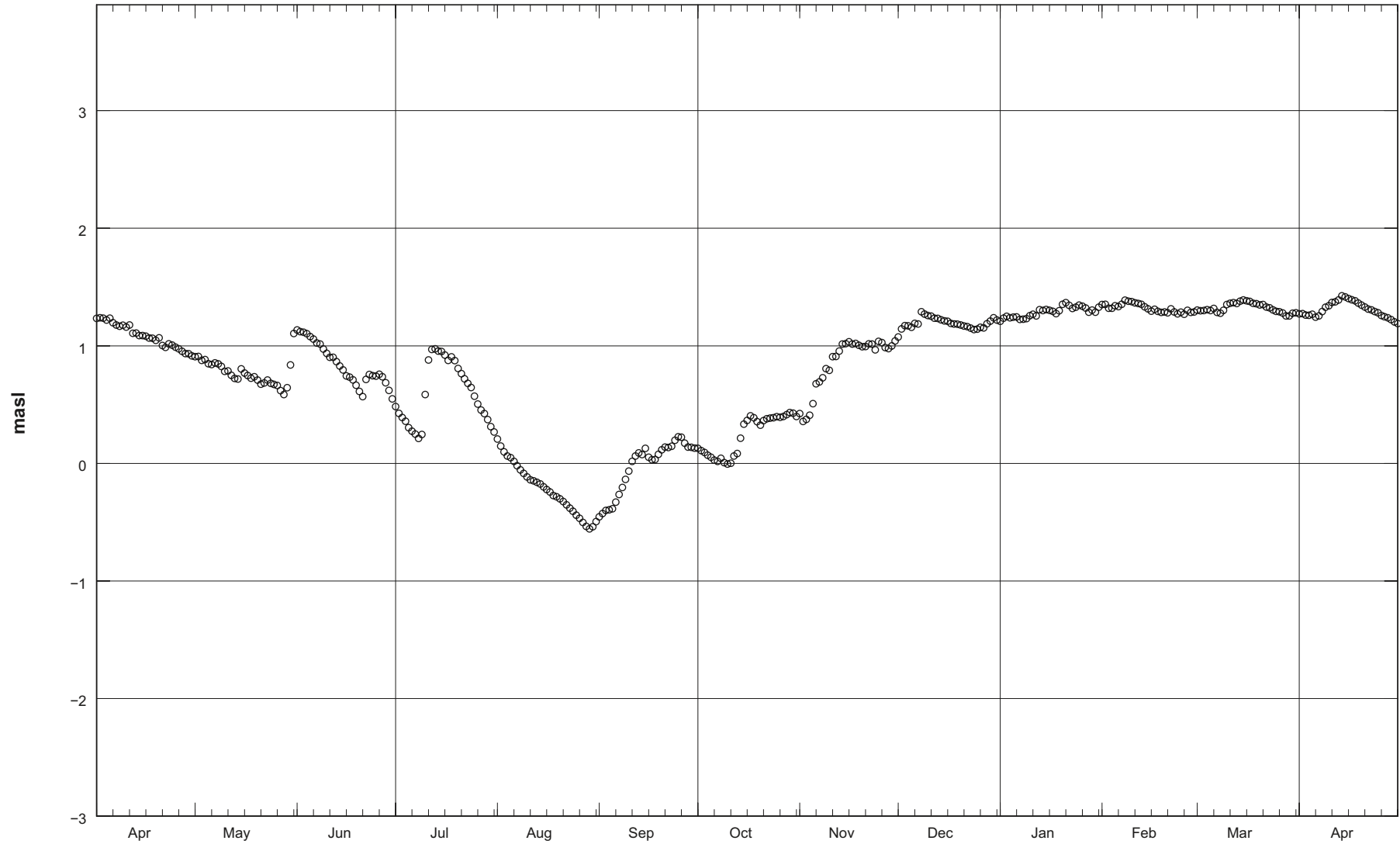


Start: 2007-04-01 month

SFM0019

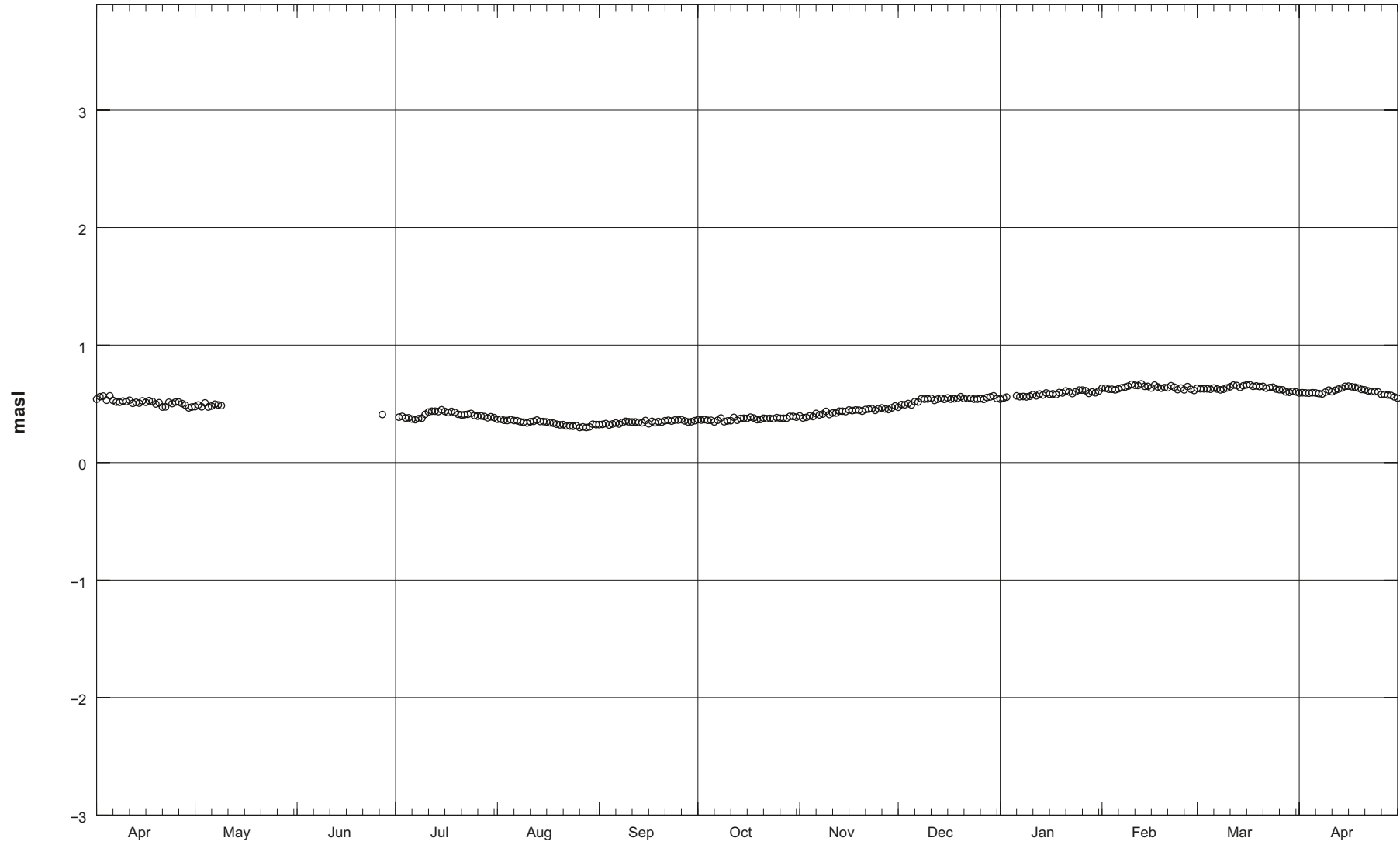


SFM0021



Start: 2007-04-01 month

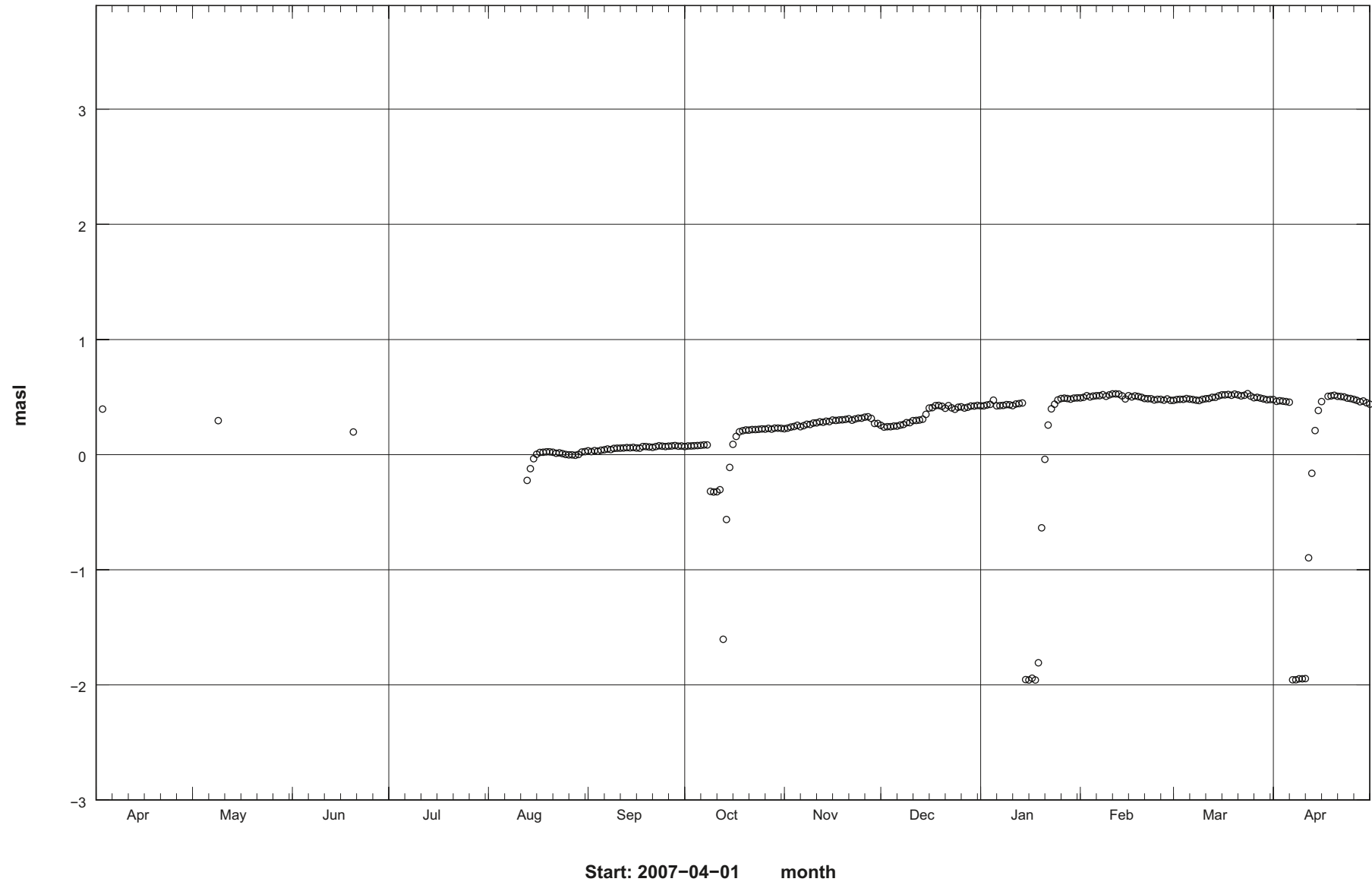
SFM0022



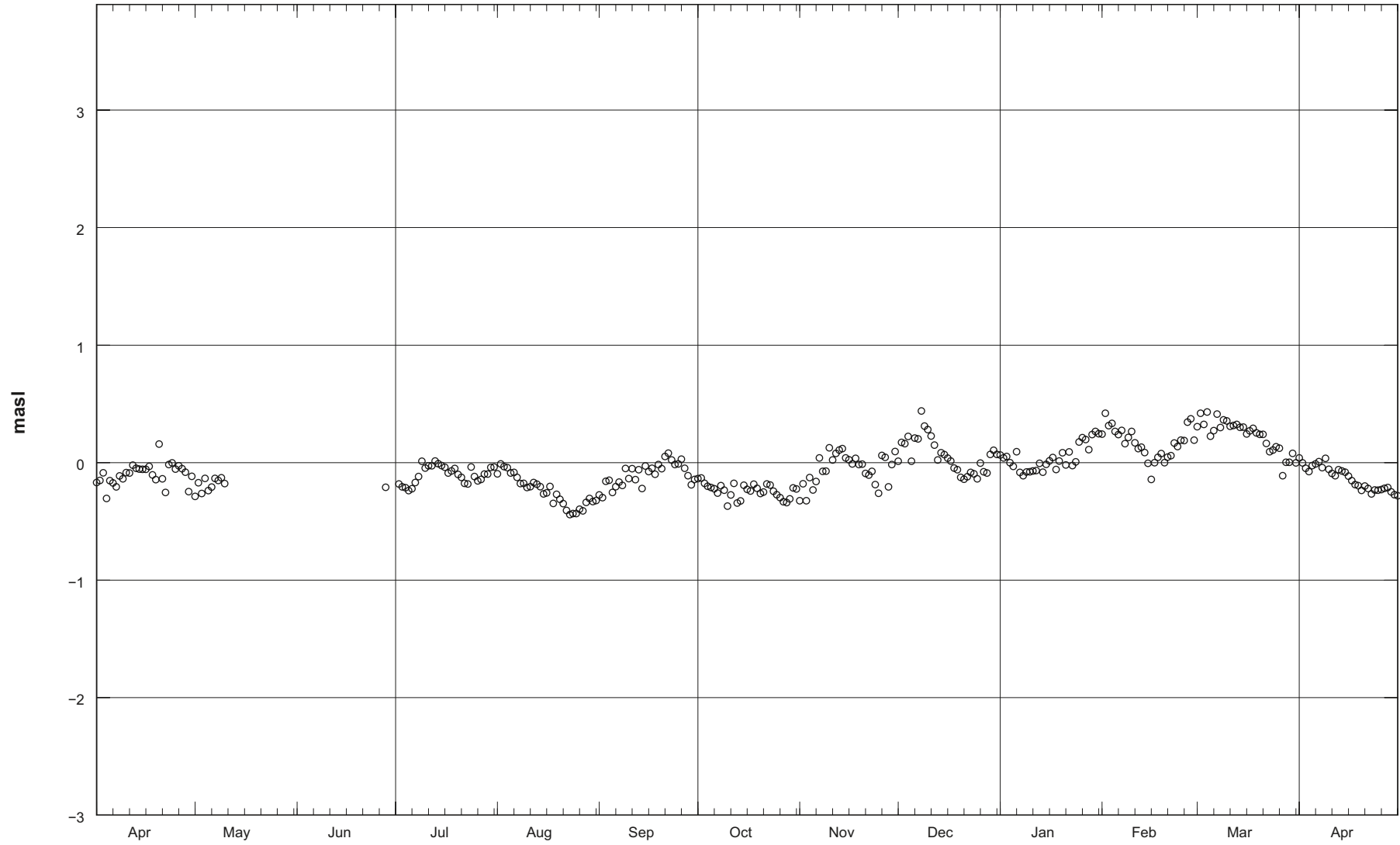
123

Start: 2007-04-01 month

SFM0023



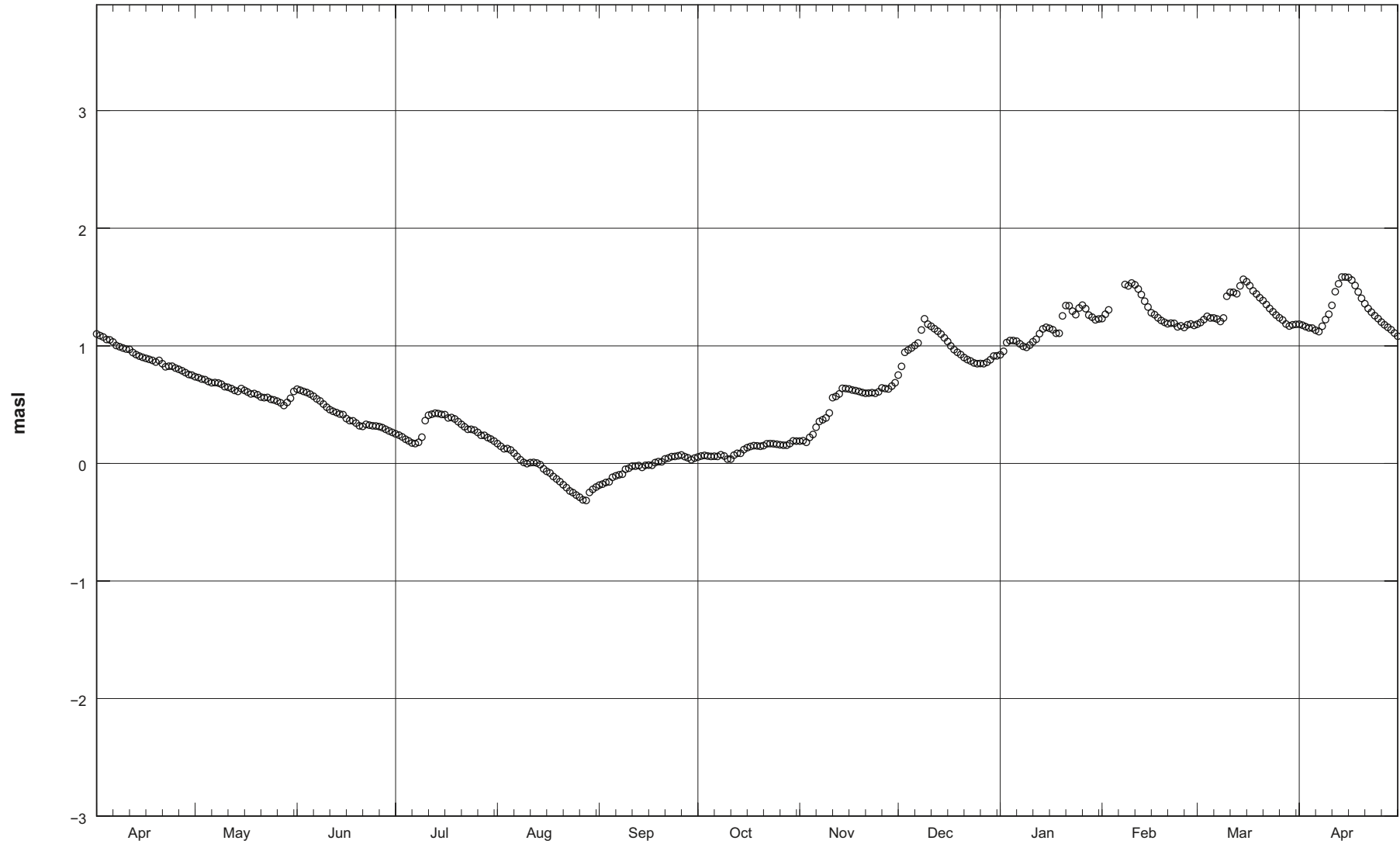
SFM0025



125

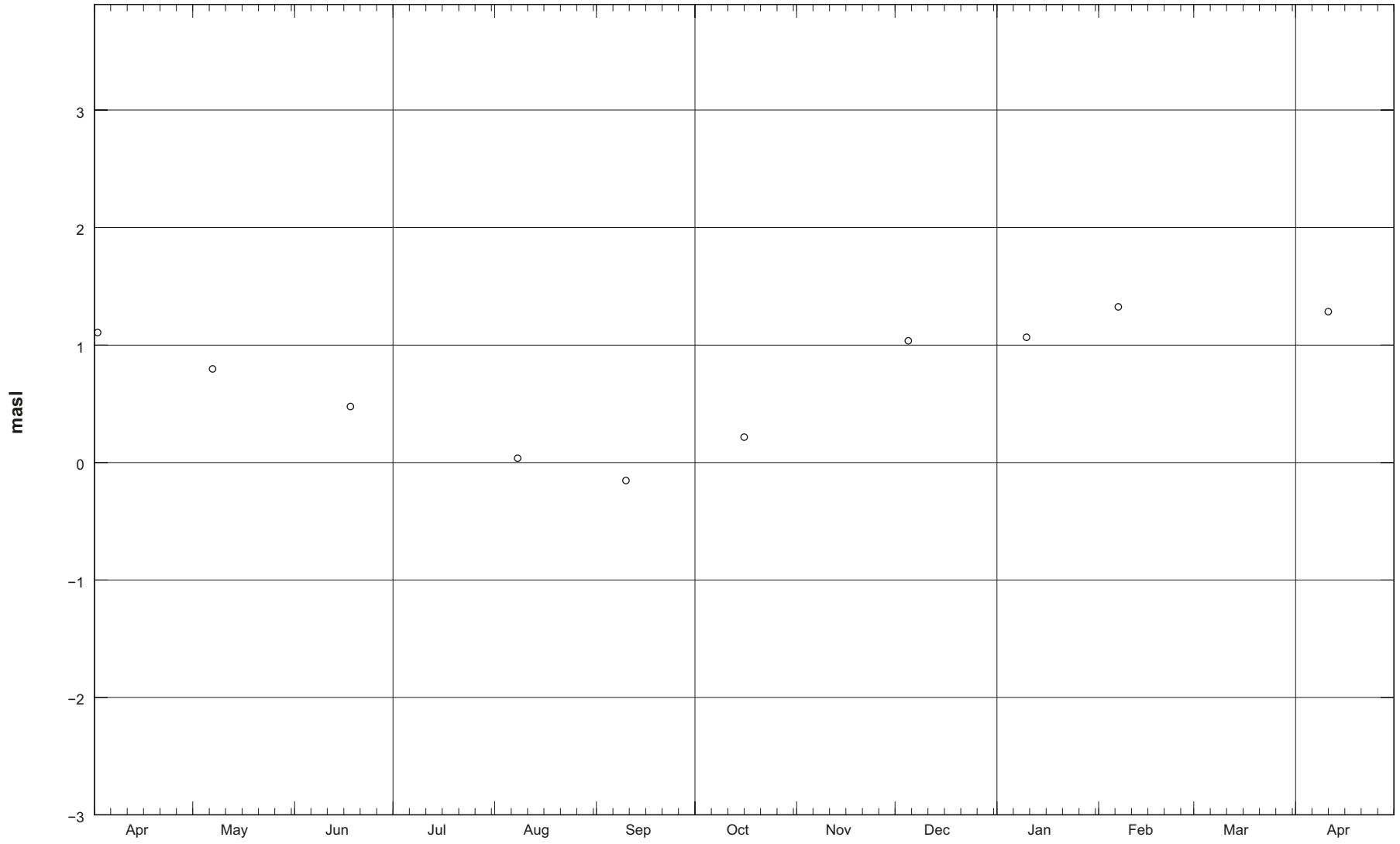
Start: 2007-04-01 month

SFM0026



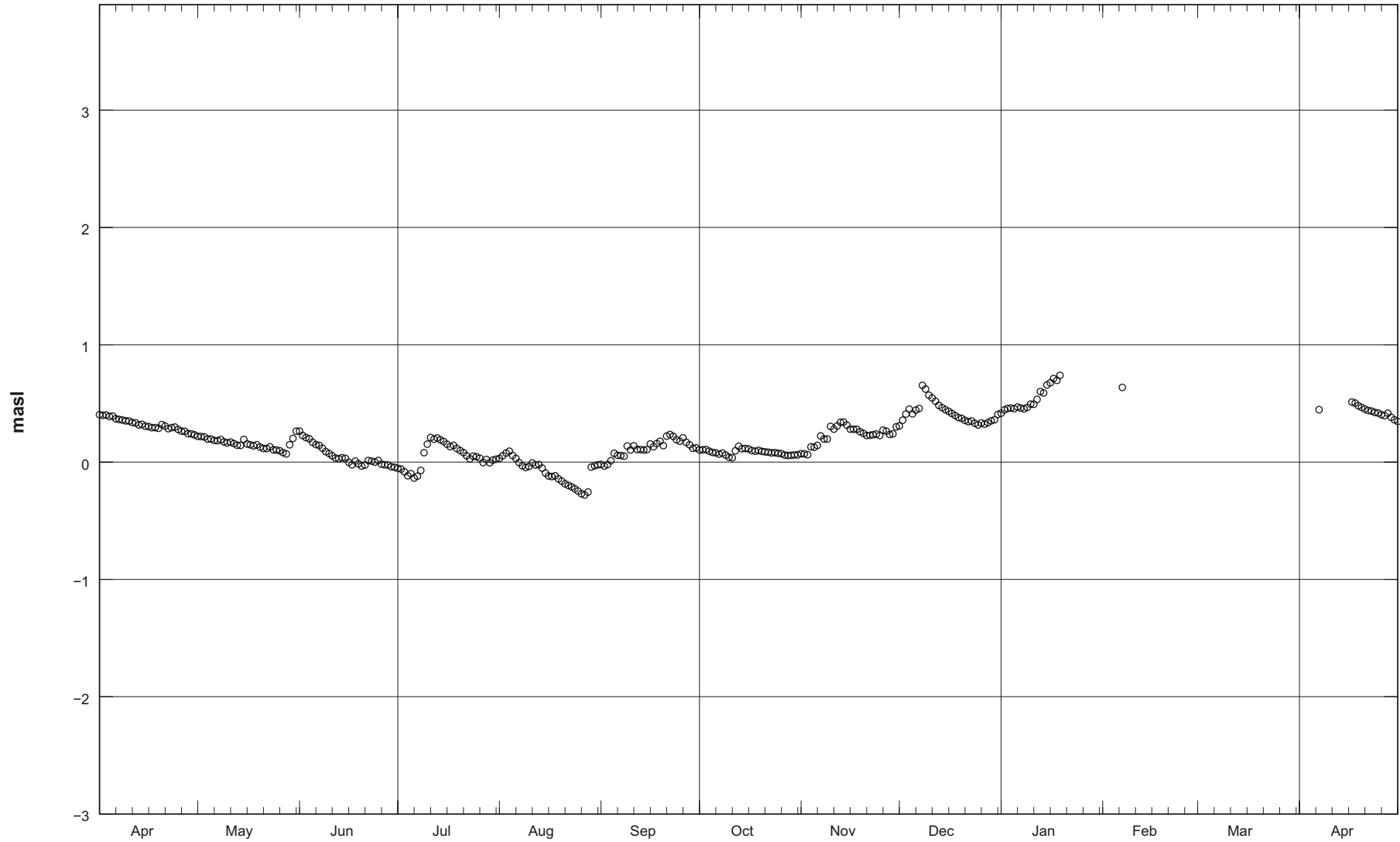
Start: 2007-04-01 month

SFM0027



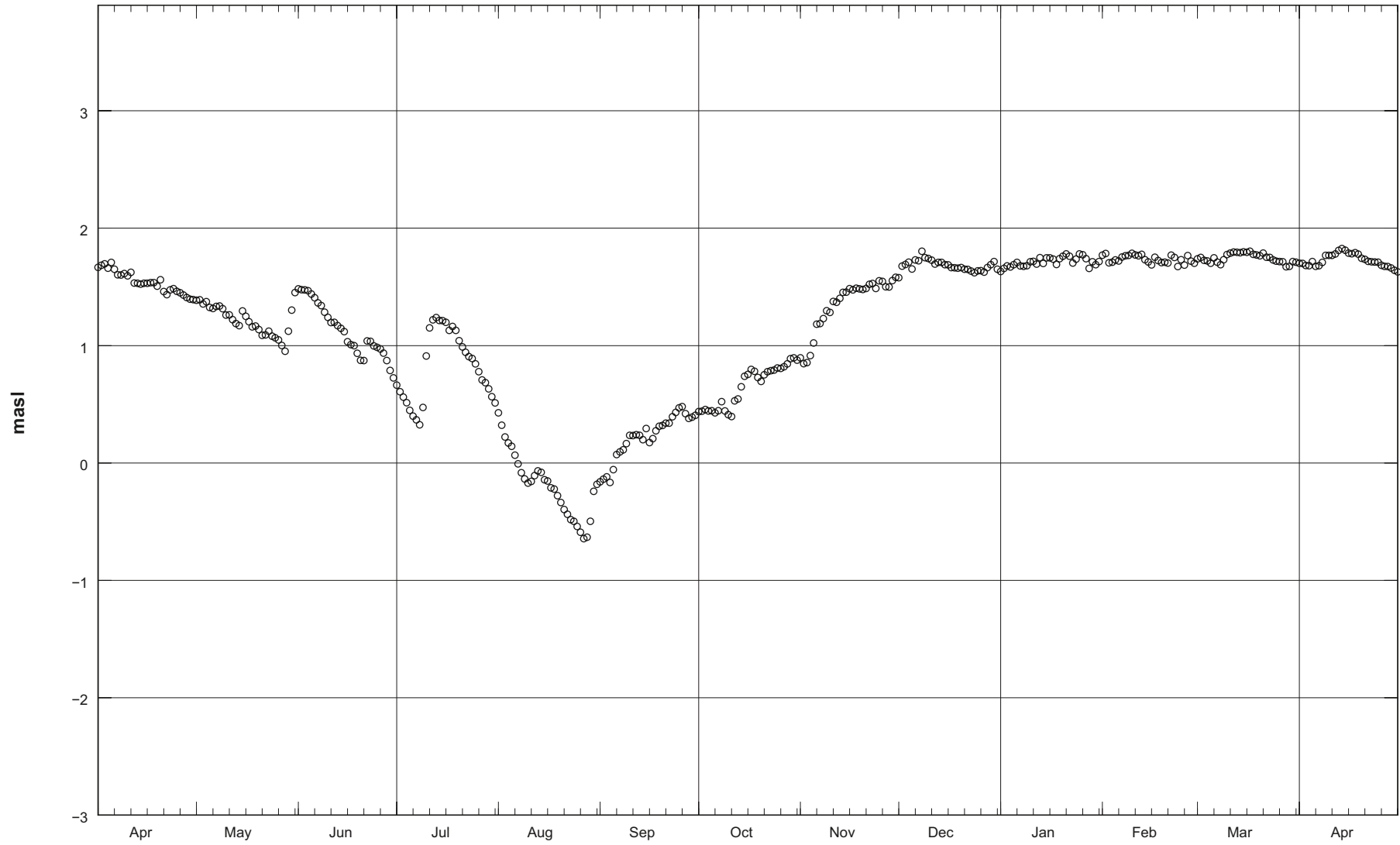
Start: 2007-04-01 month

SFM0028

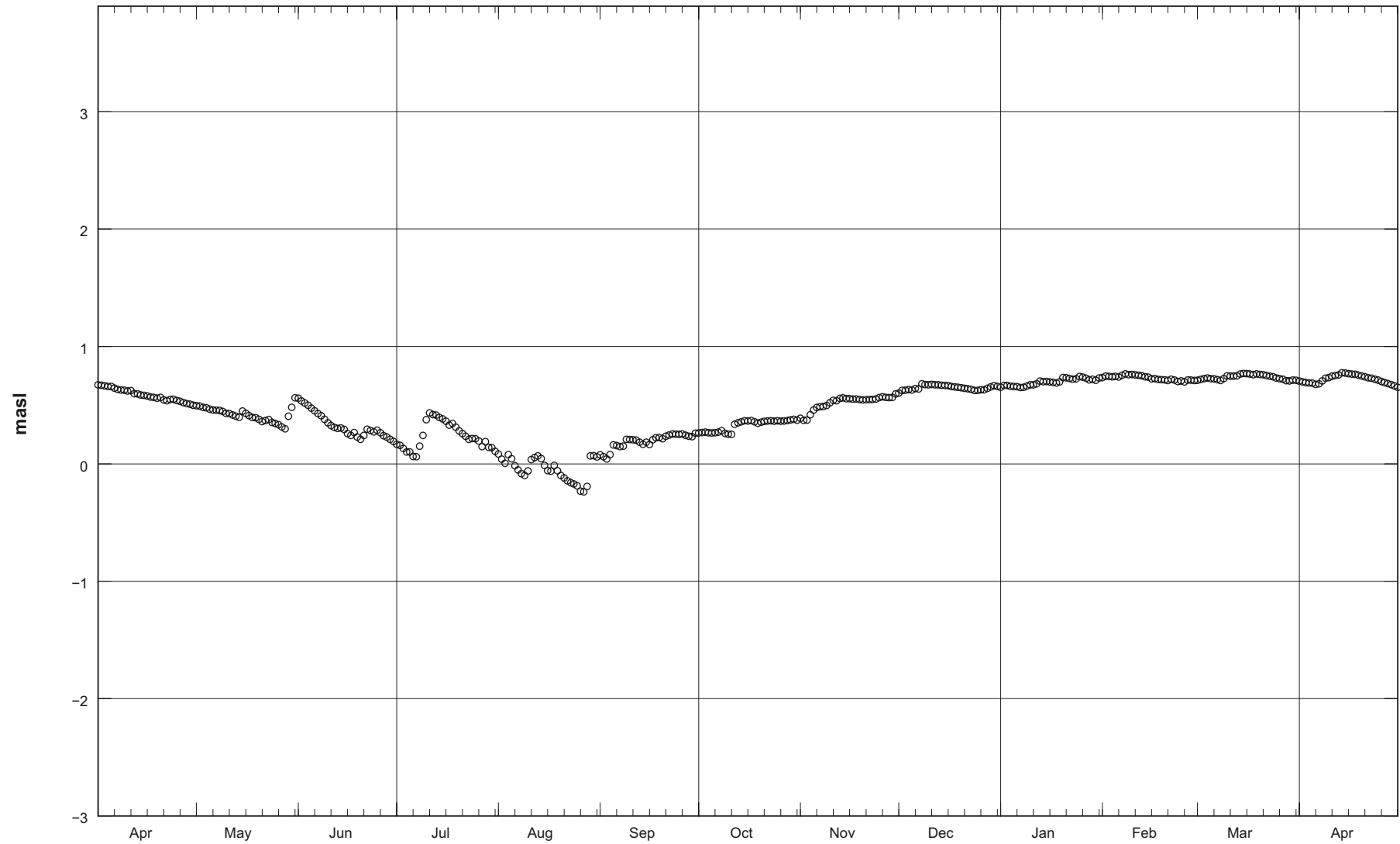


Start: 2007-04-01 month

SFM0030



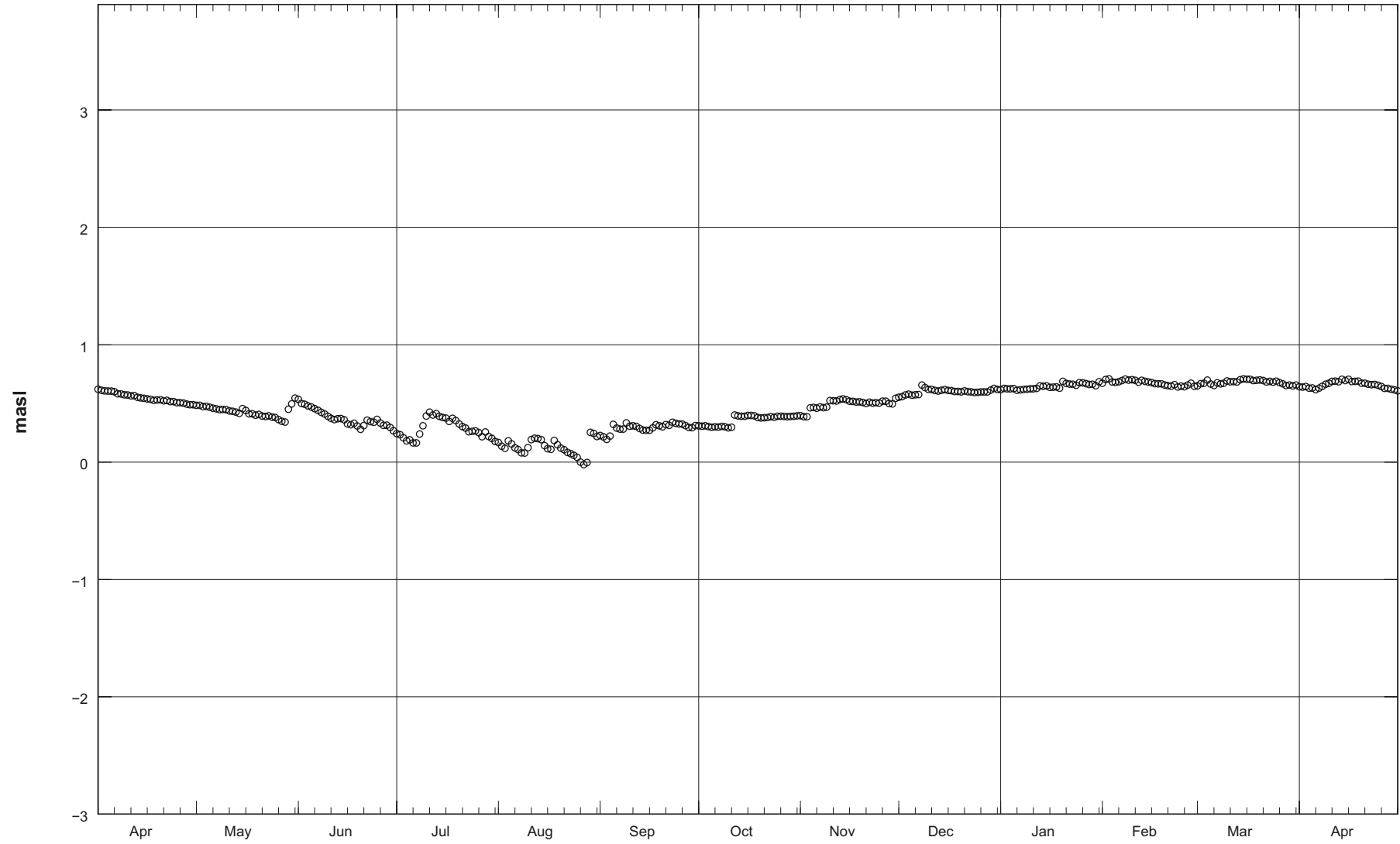
SFM0033



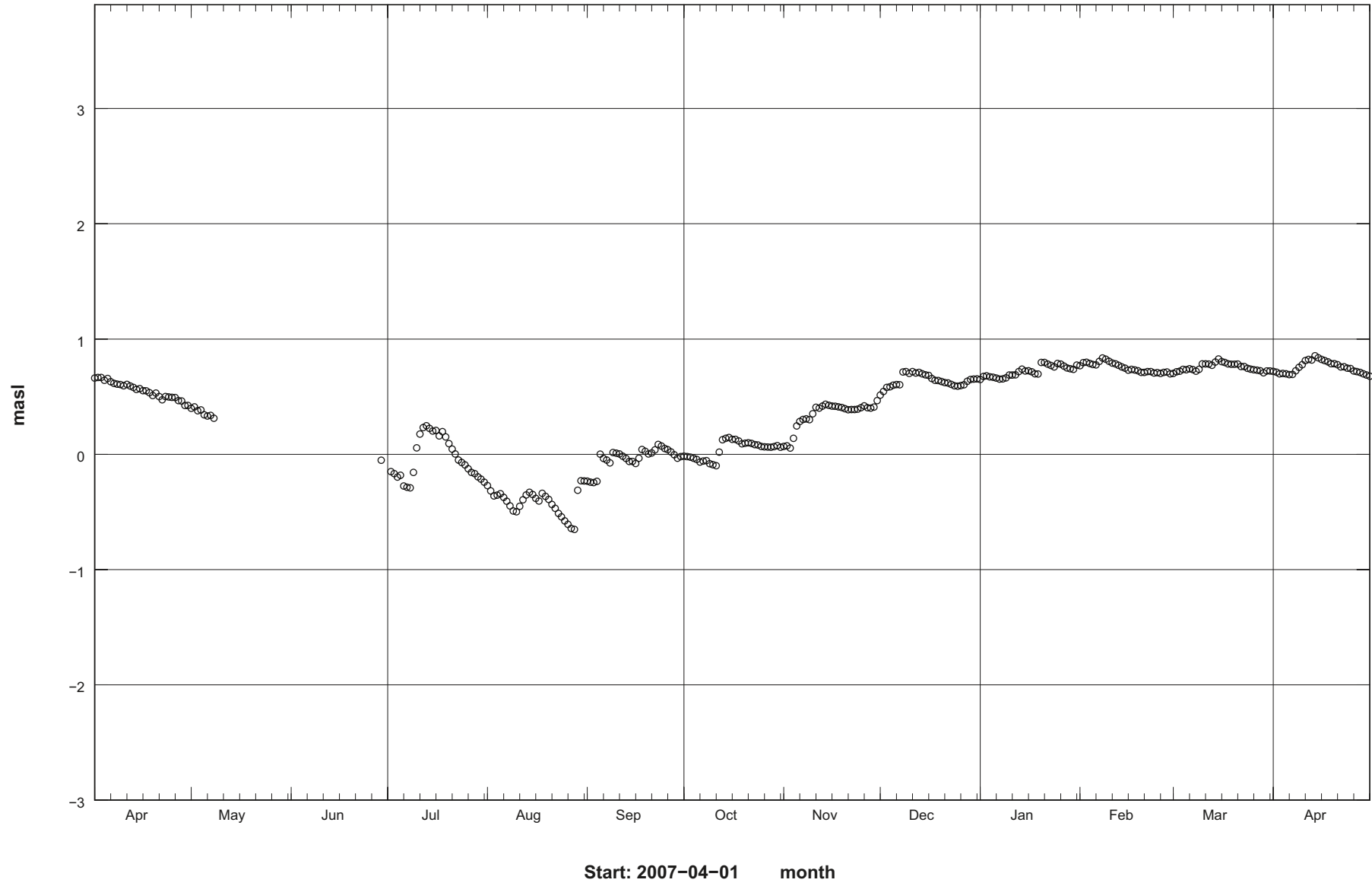
130

Start: 2007-04-01 month

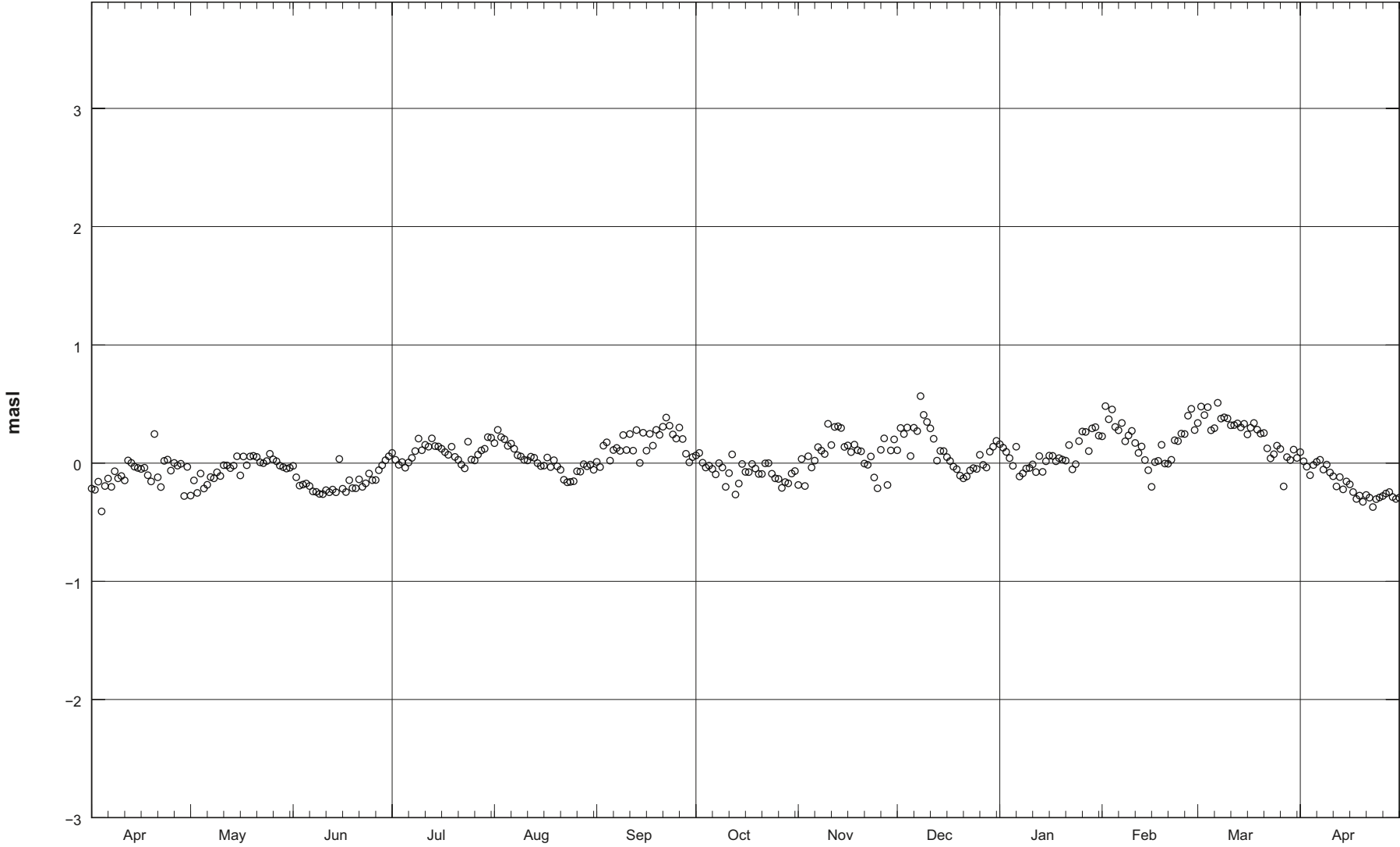
SFM0034



SFM0036

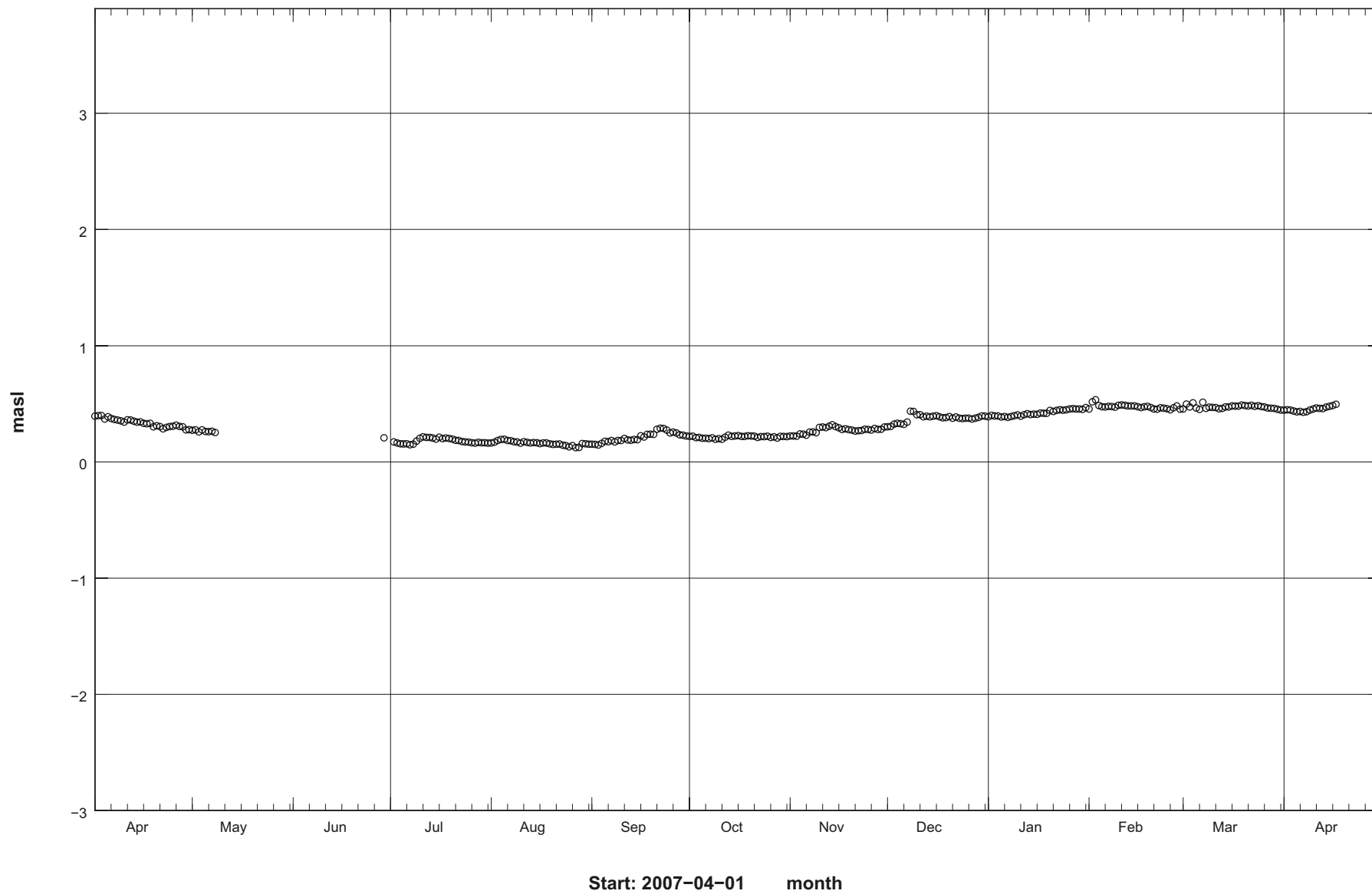


SFM0038 (= PFM010038)

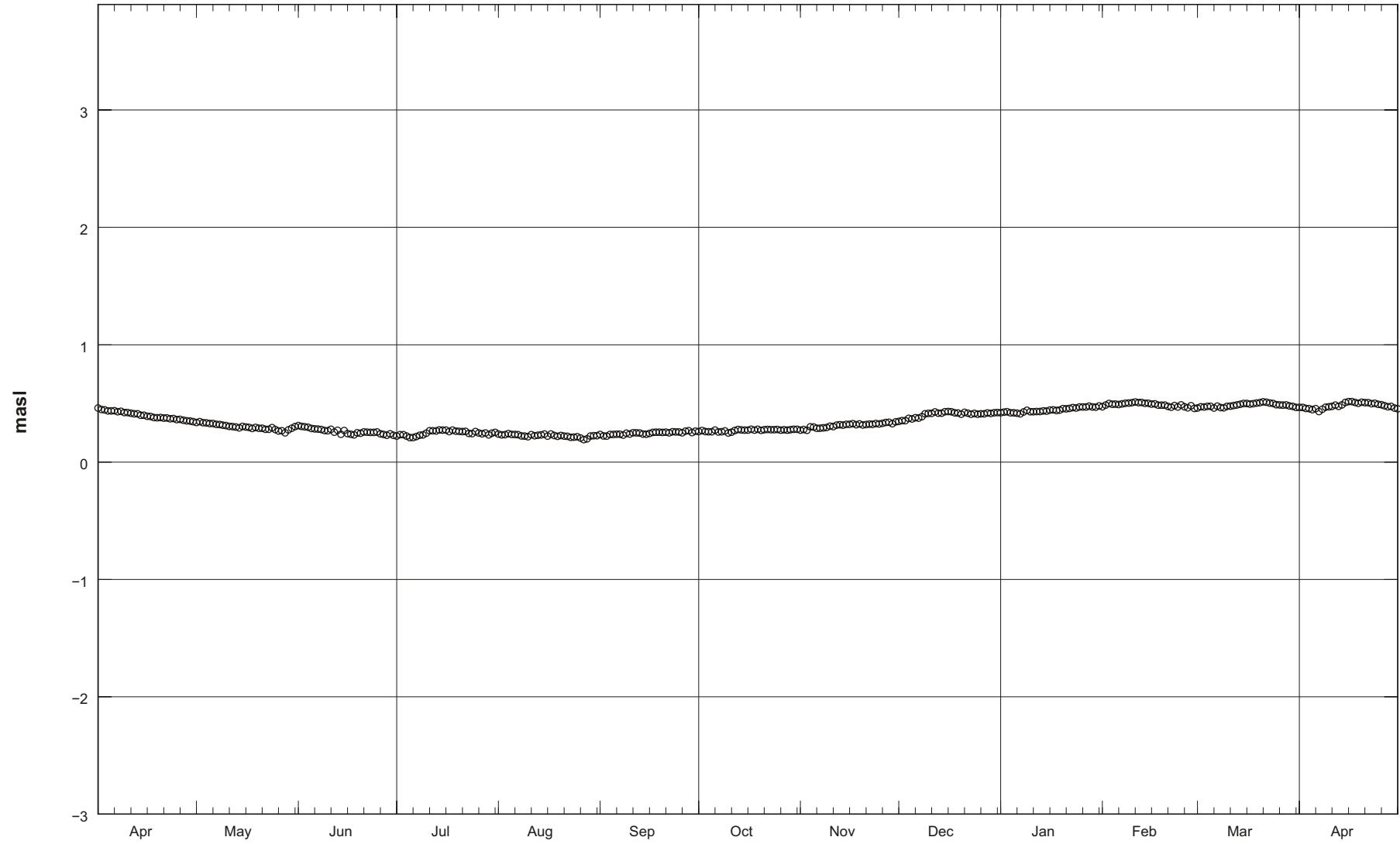


Start: 2007-04-01 month

SFM0039



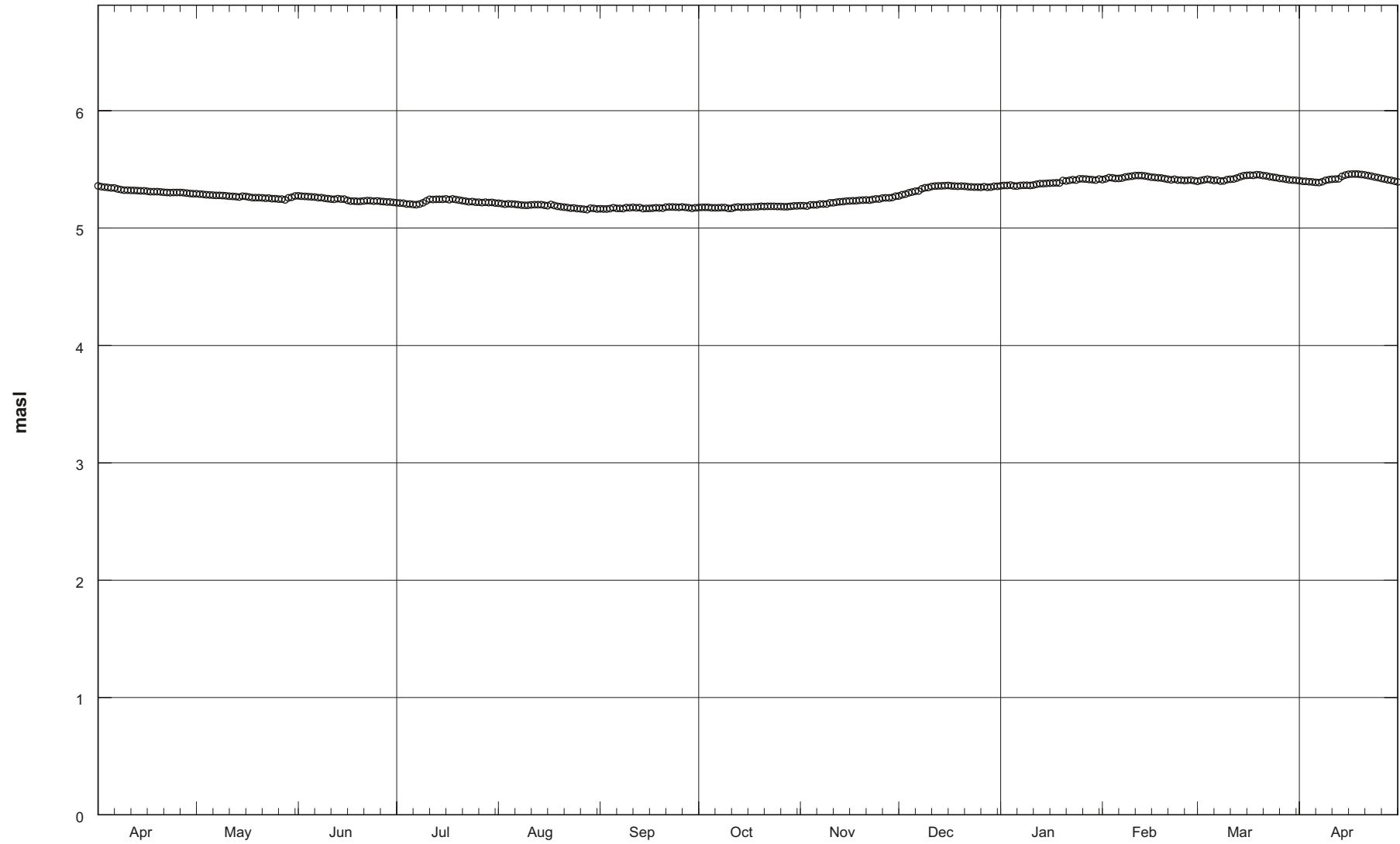
SFM0040



135

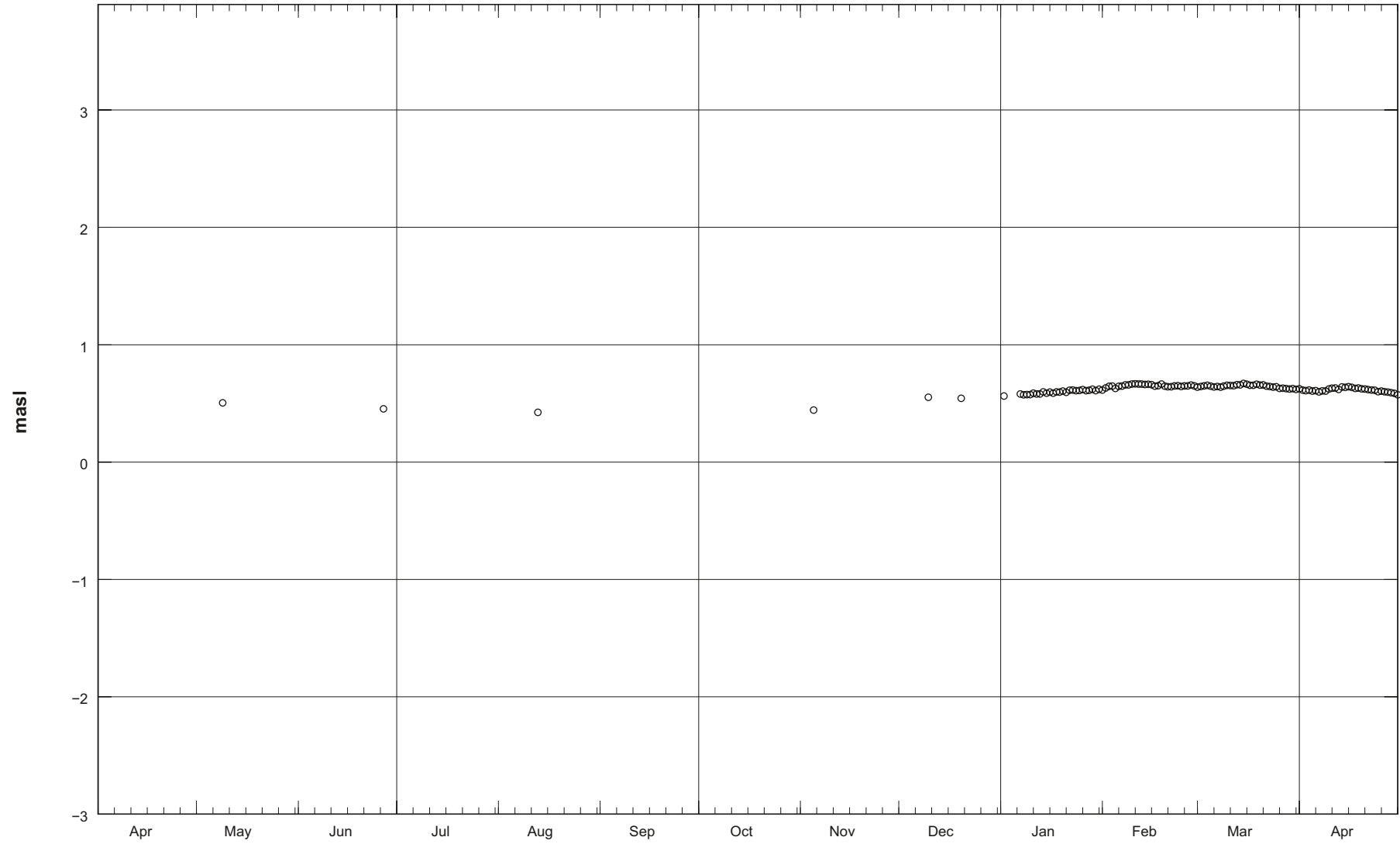
Start: 2007-04-01 month

SFM0041



Start: 2007-04-01 month

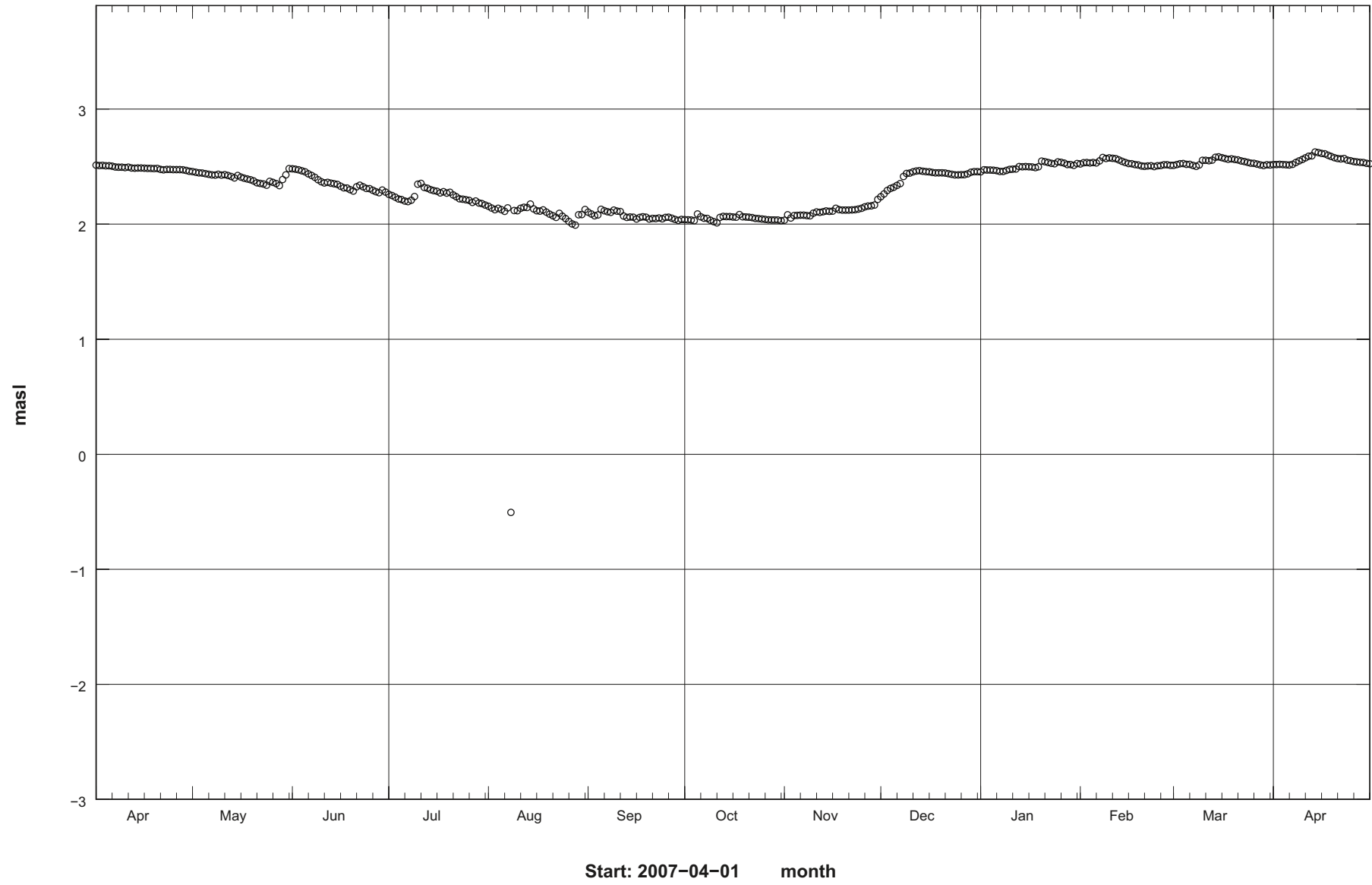
SFM0042



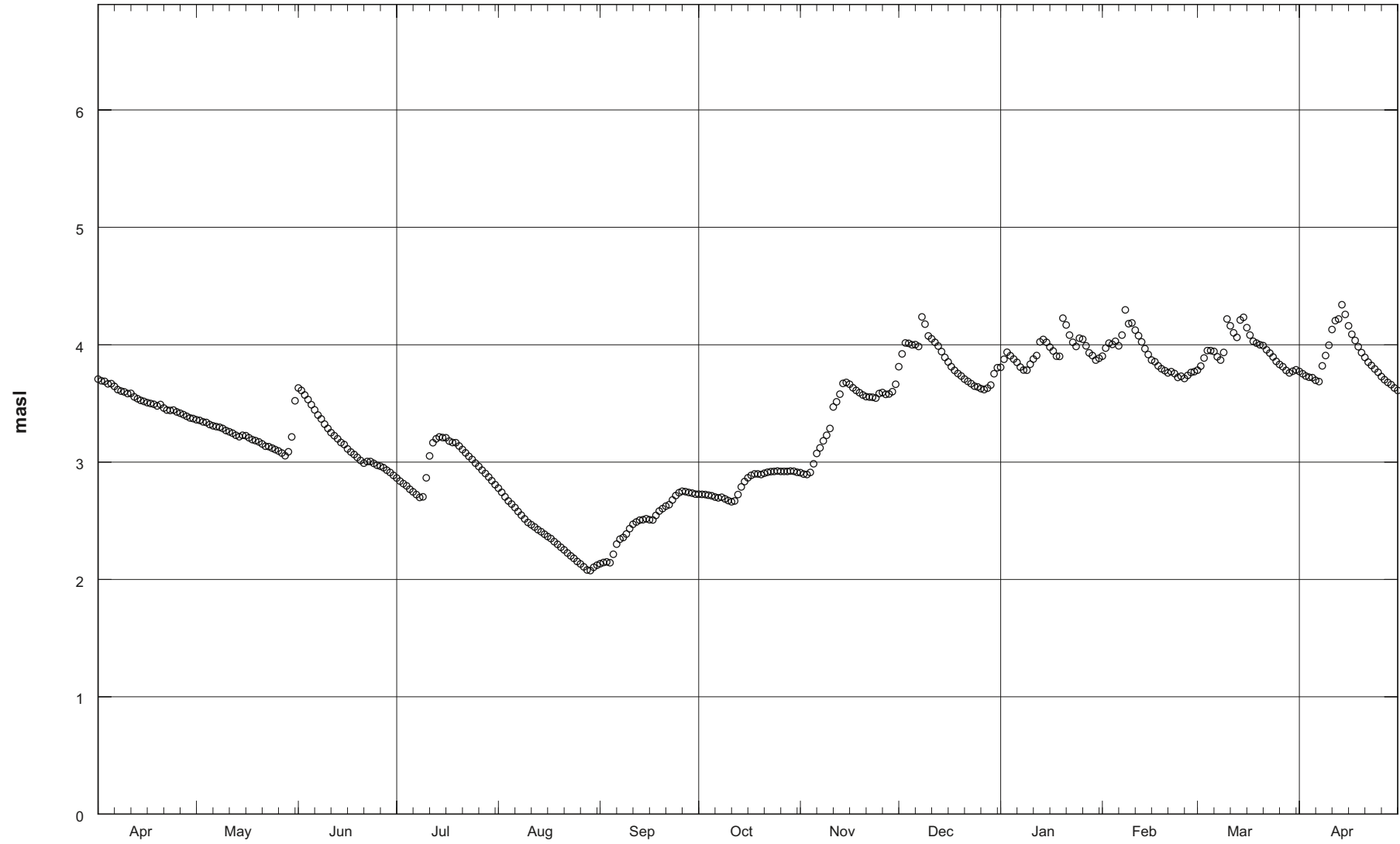
137

Start: 2007-04-01 month

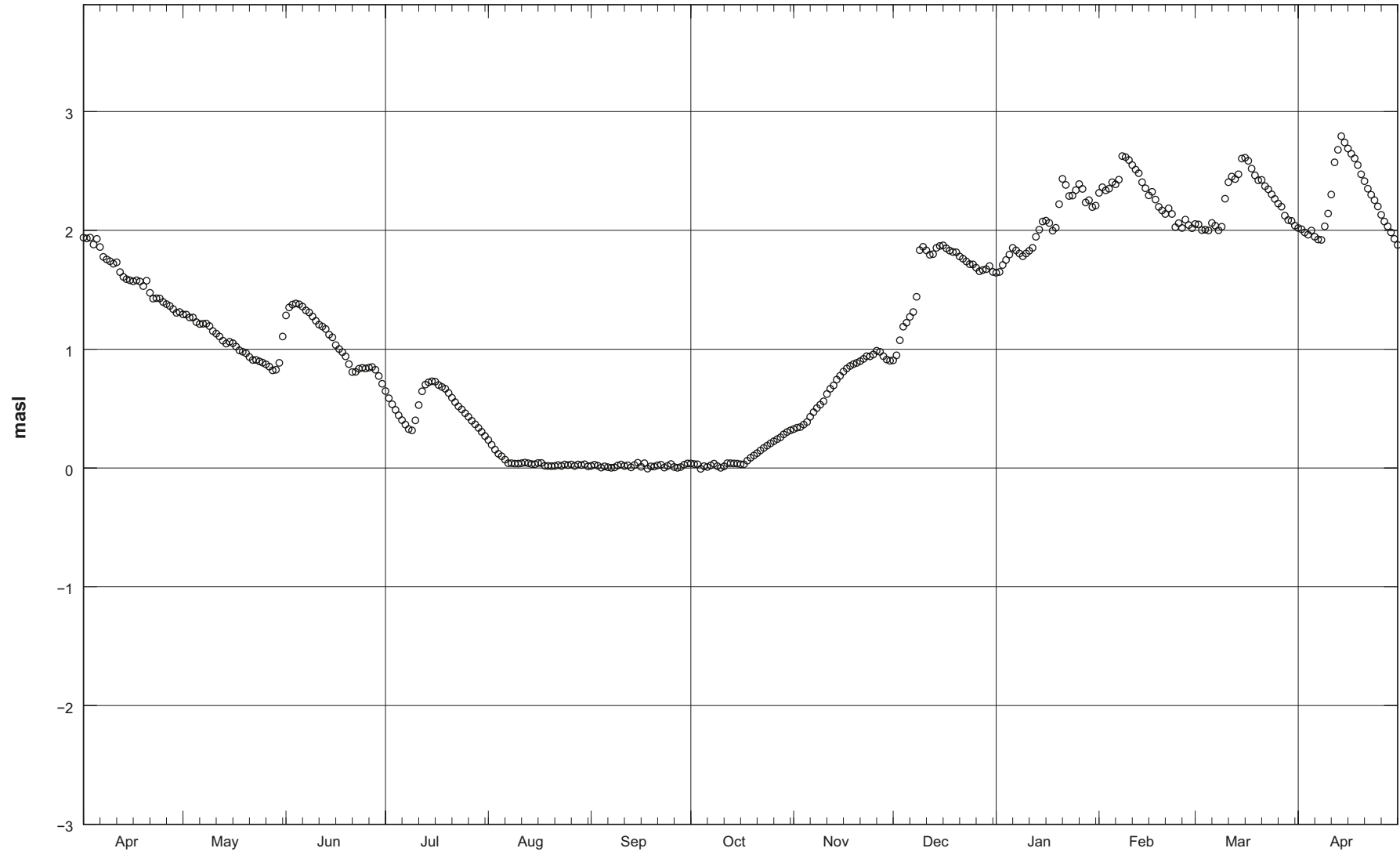
SFM0049



SFM0057

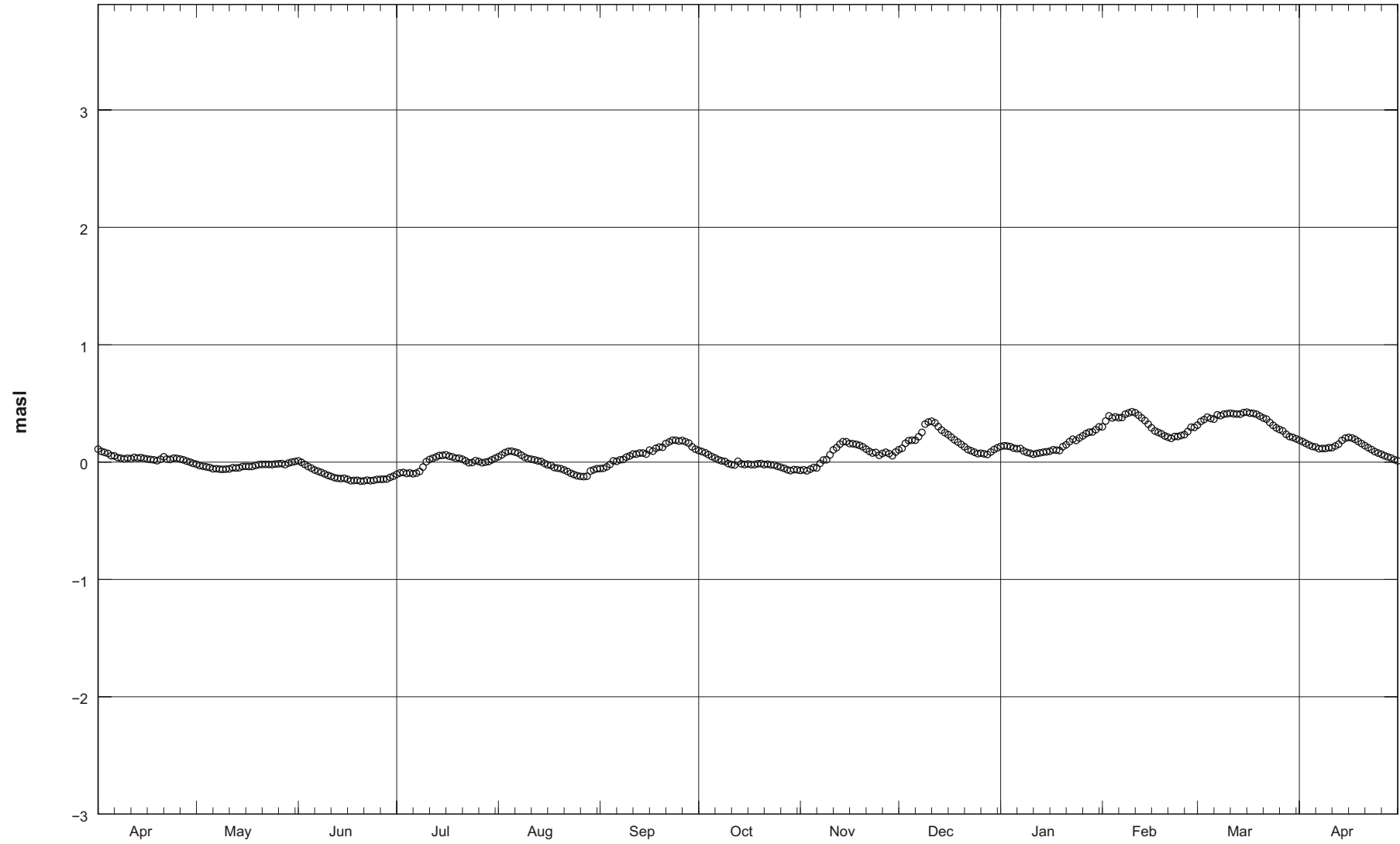


SFM0058



Start: 2007-04-01 month

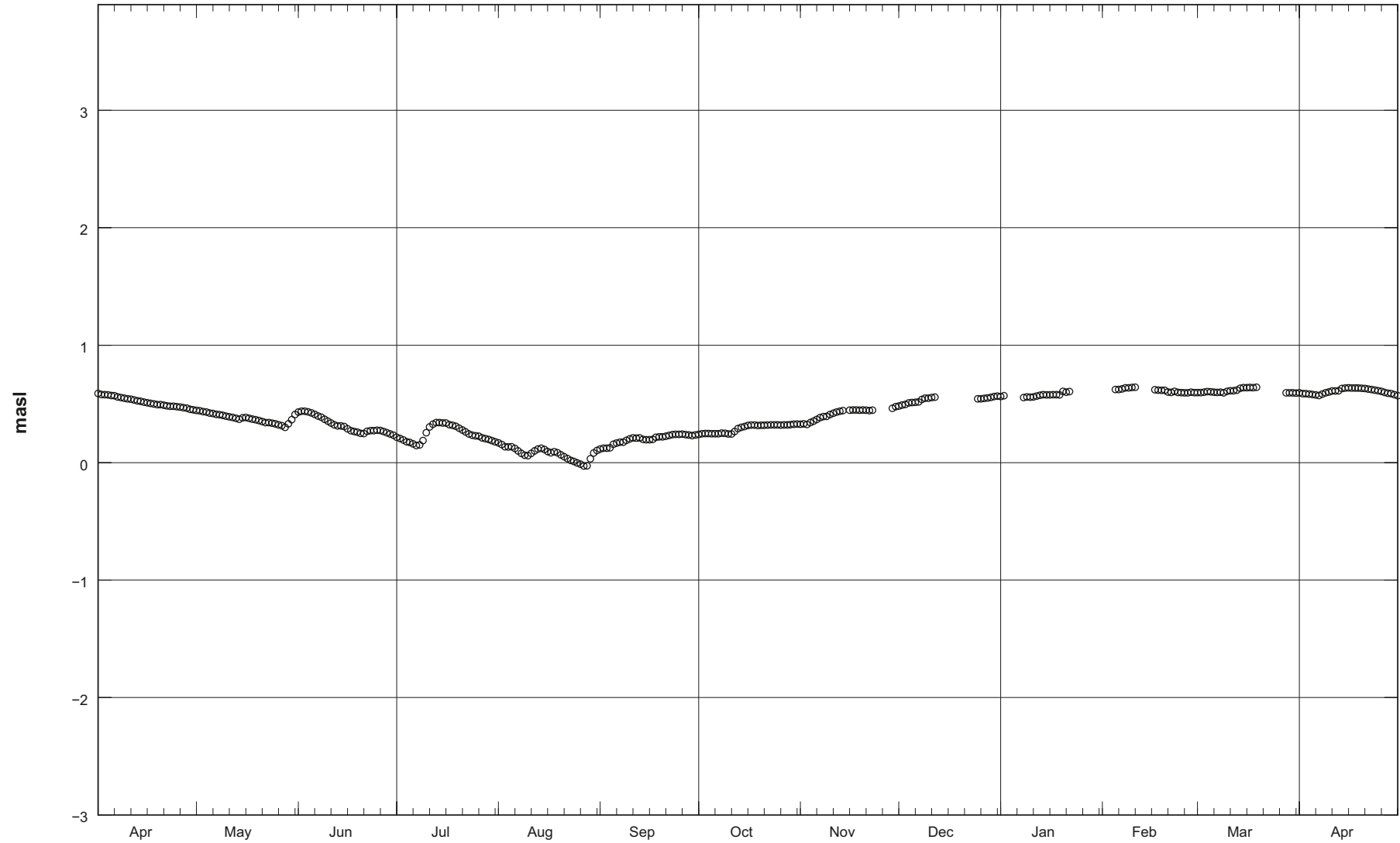
SFM0061



141

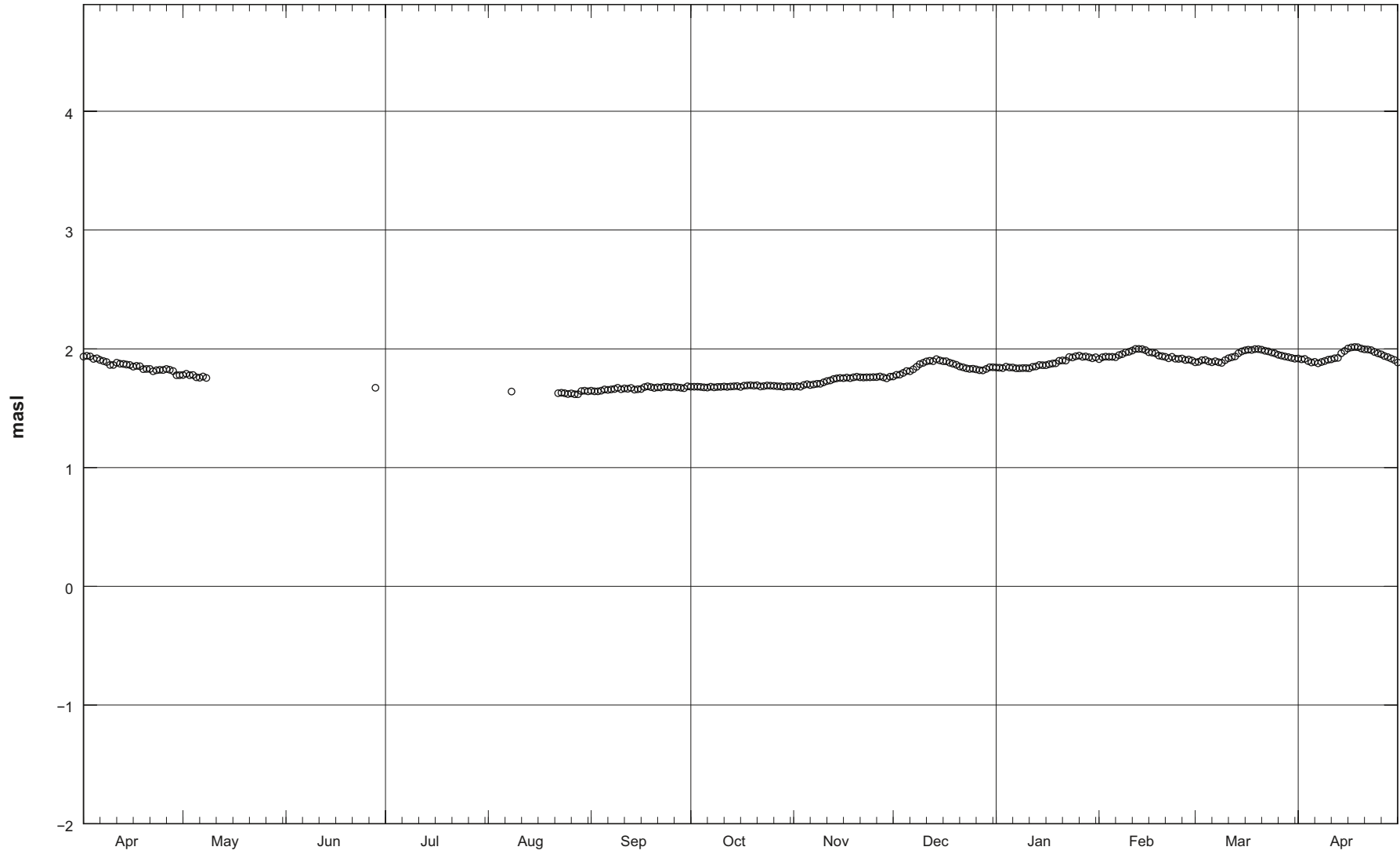
Start: 2007-04-01 month

SFM0062



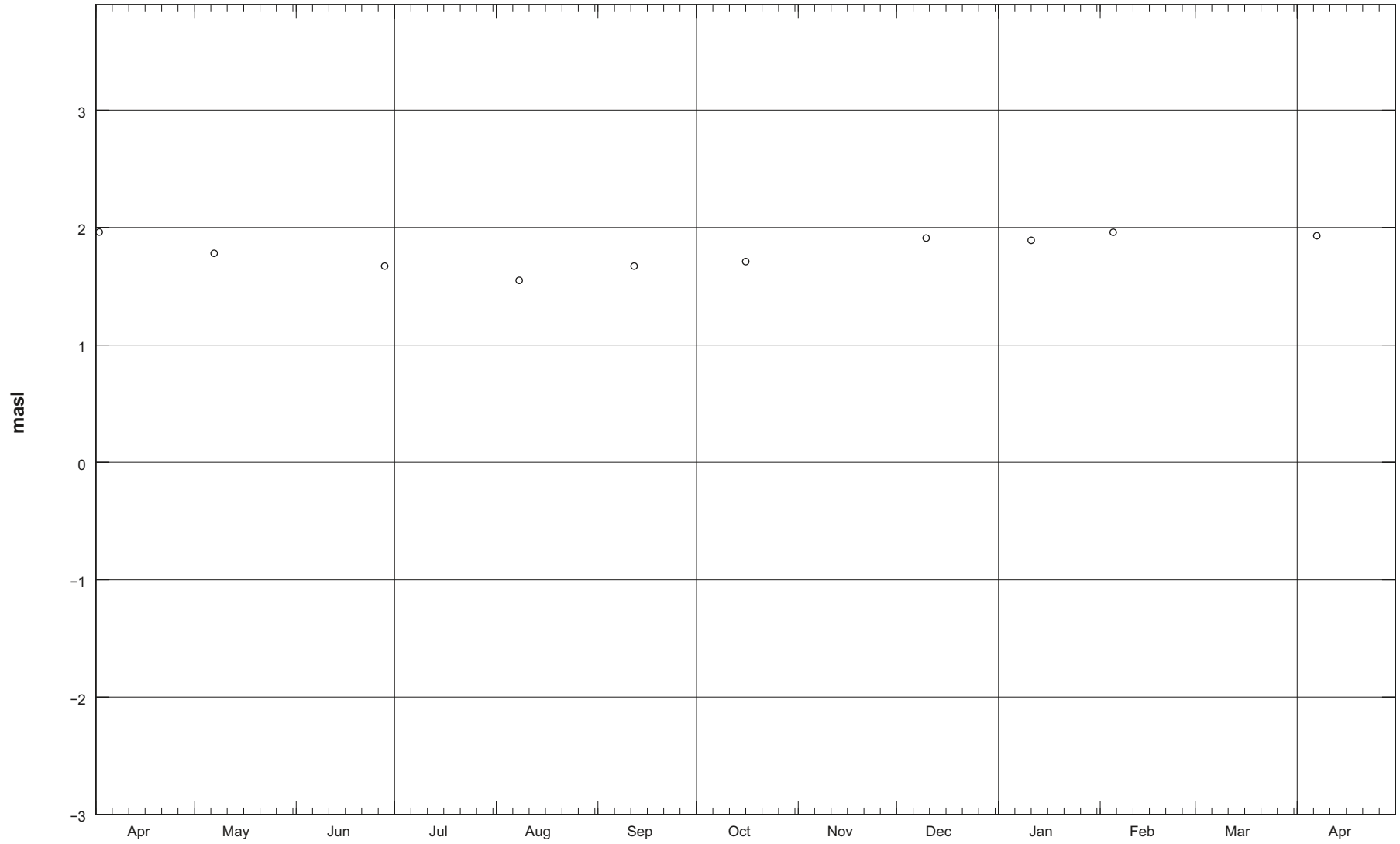
Start: 2007-04-01 month

SFM0064



Start: 2007-04-01 month

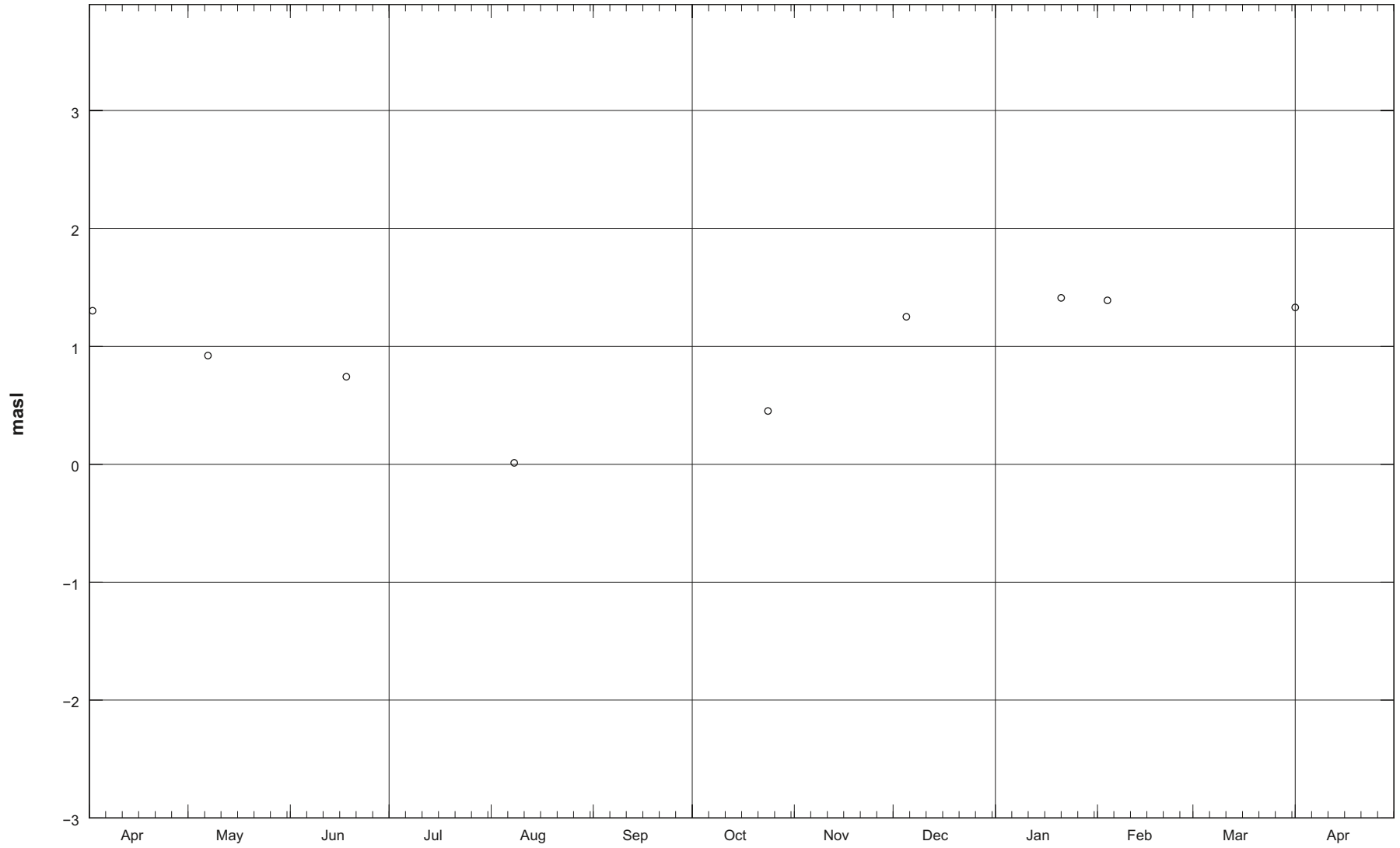
SFM0067



144

Start: 2007-04-01 month

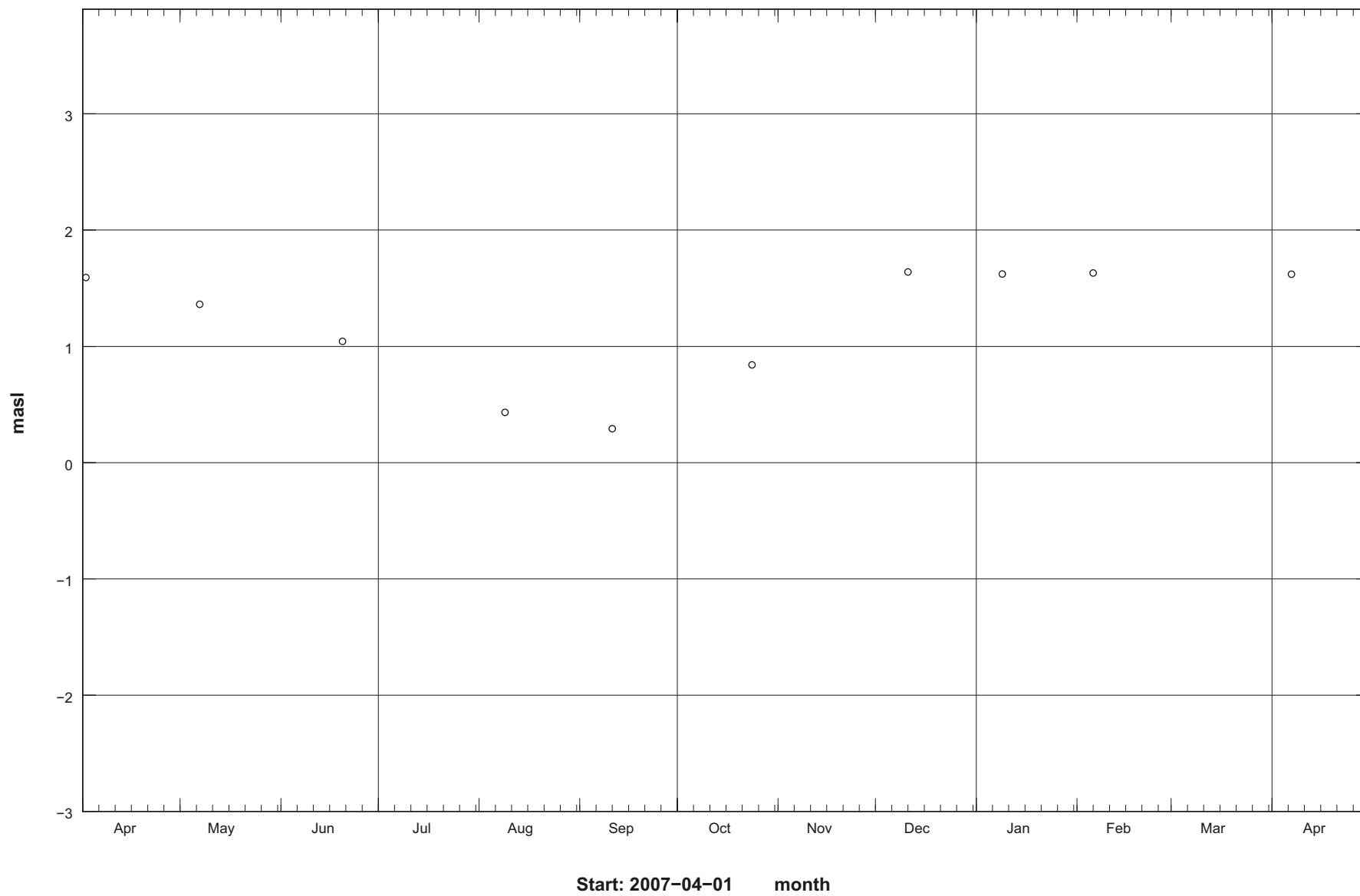
SFM0068



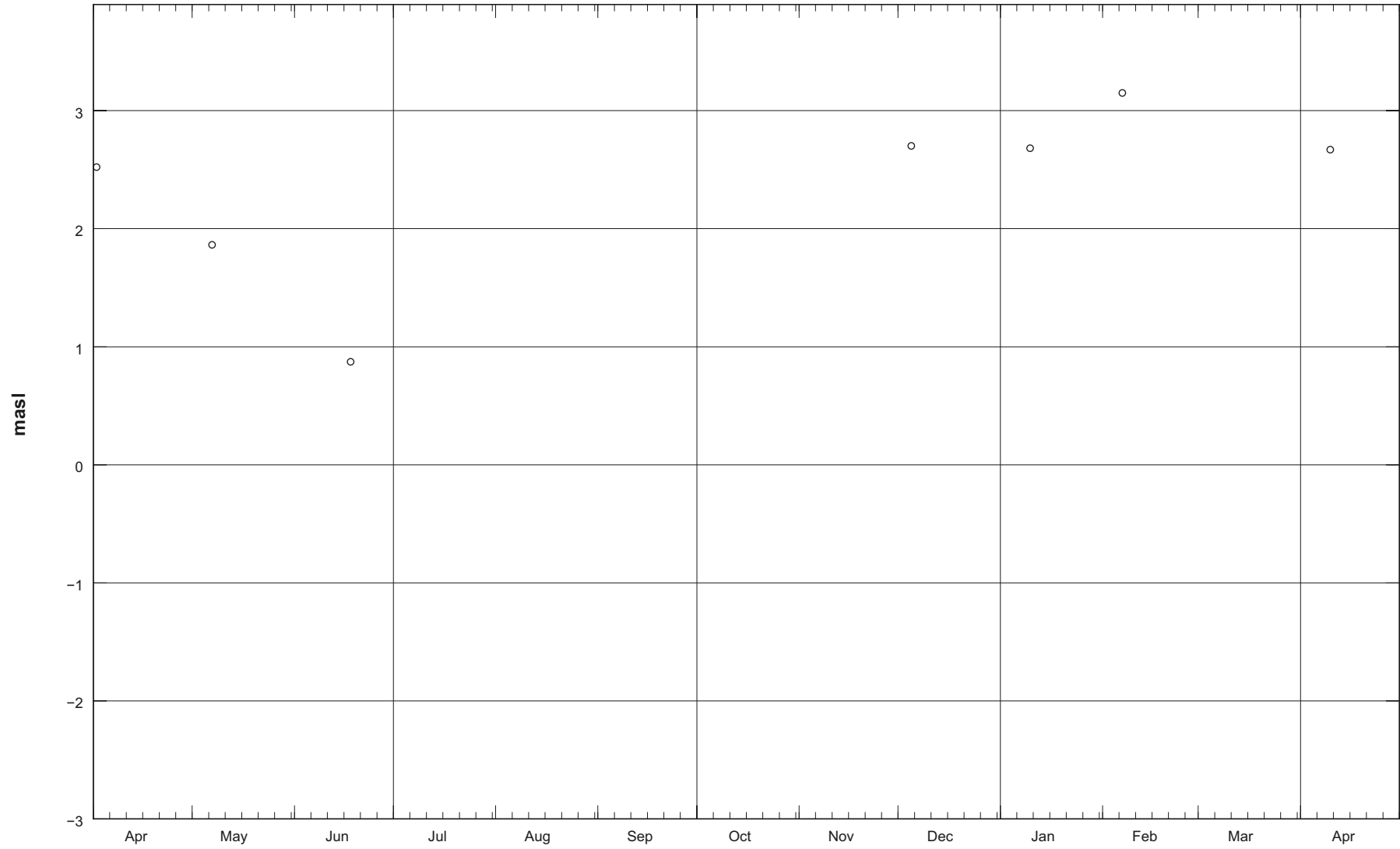
145

Start: 2007-04-01 month

SFM0069



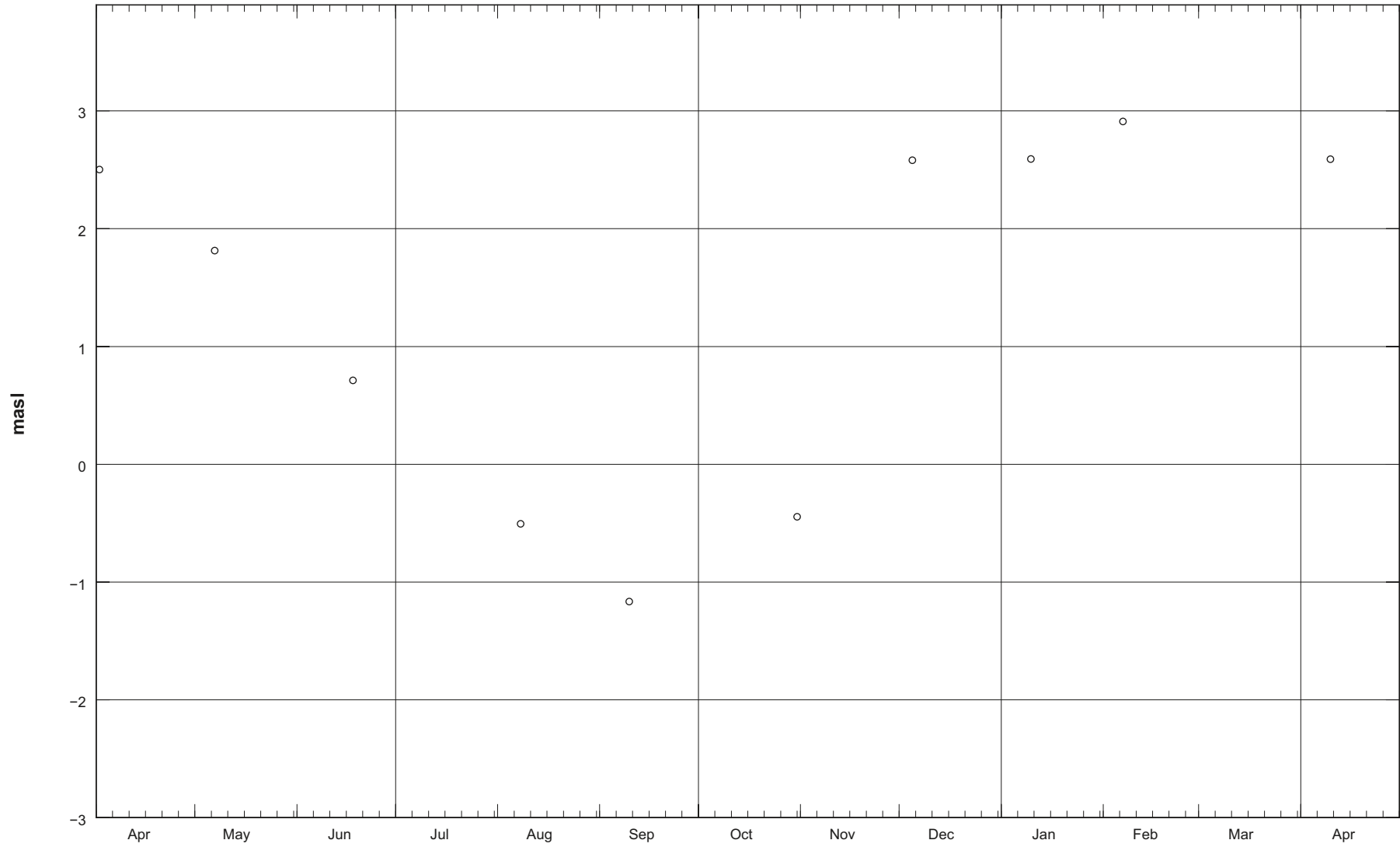
SFM0070



147

Start: 2007-04-01 month

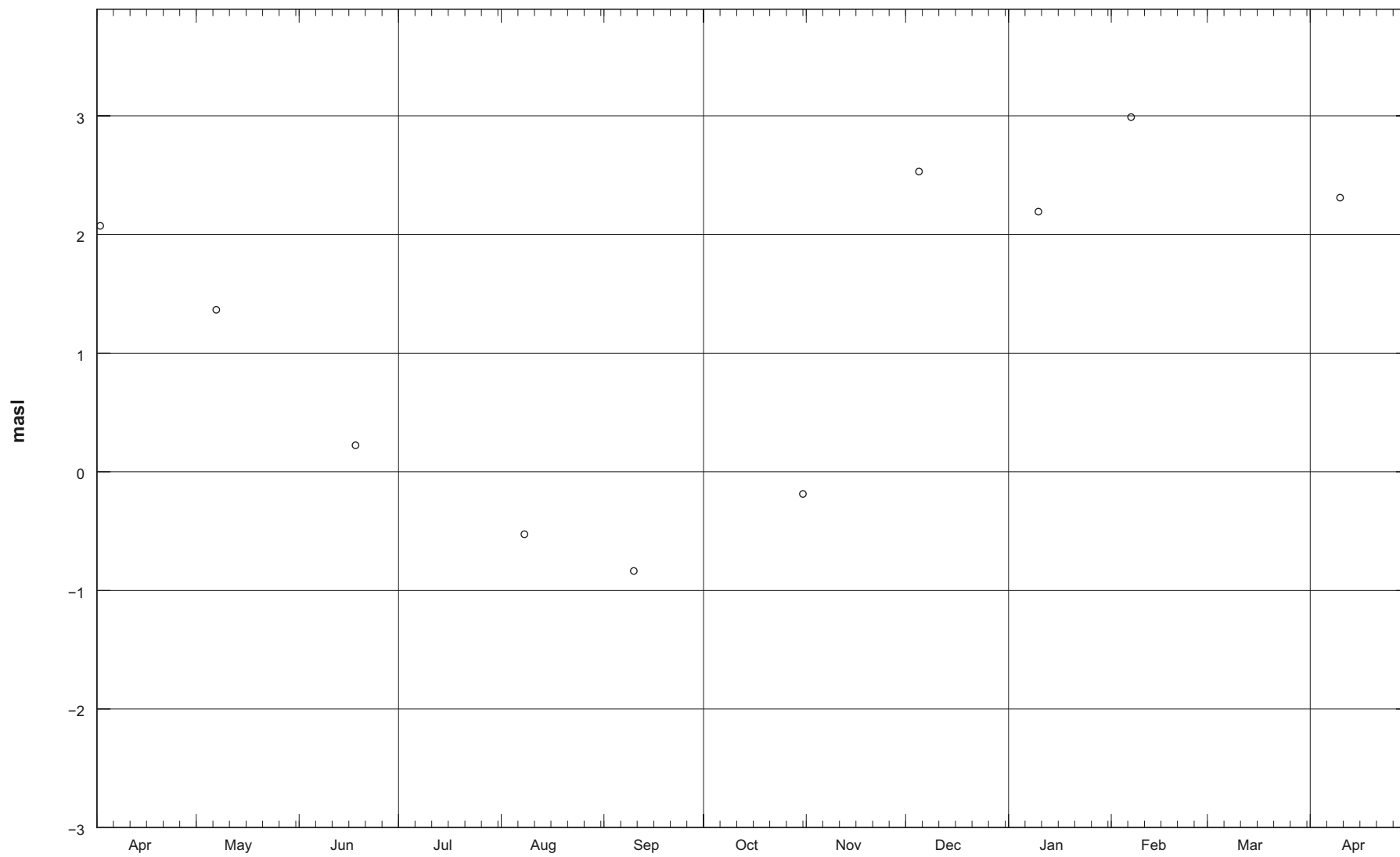
SFM0071



148

Start: 2007-04-01 month

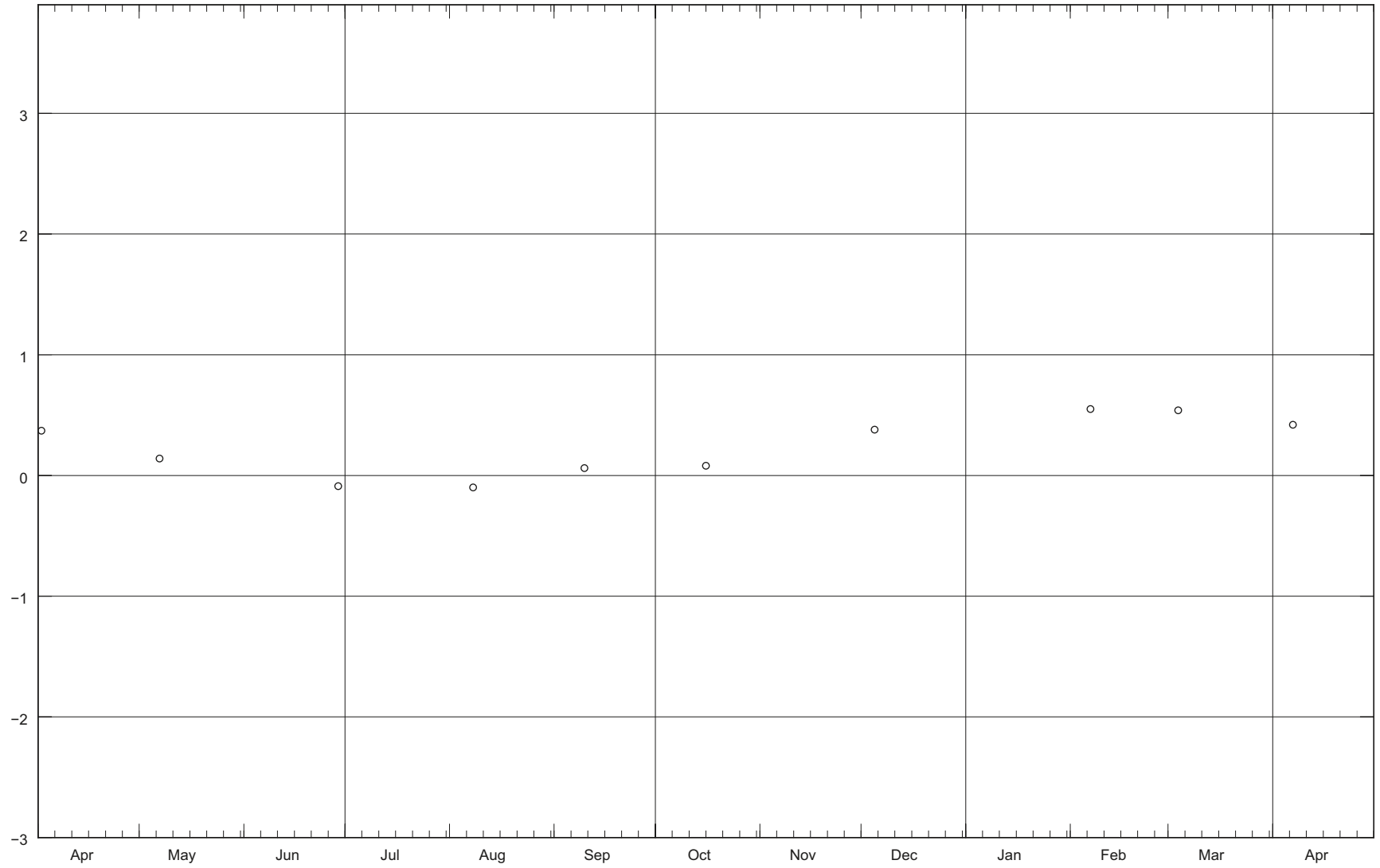
SFM0072



SFM0073

150

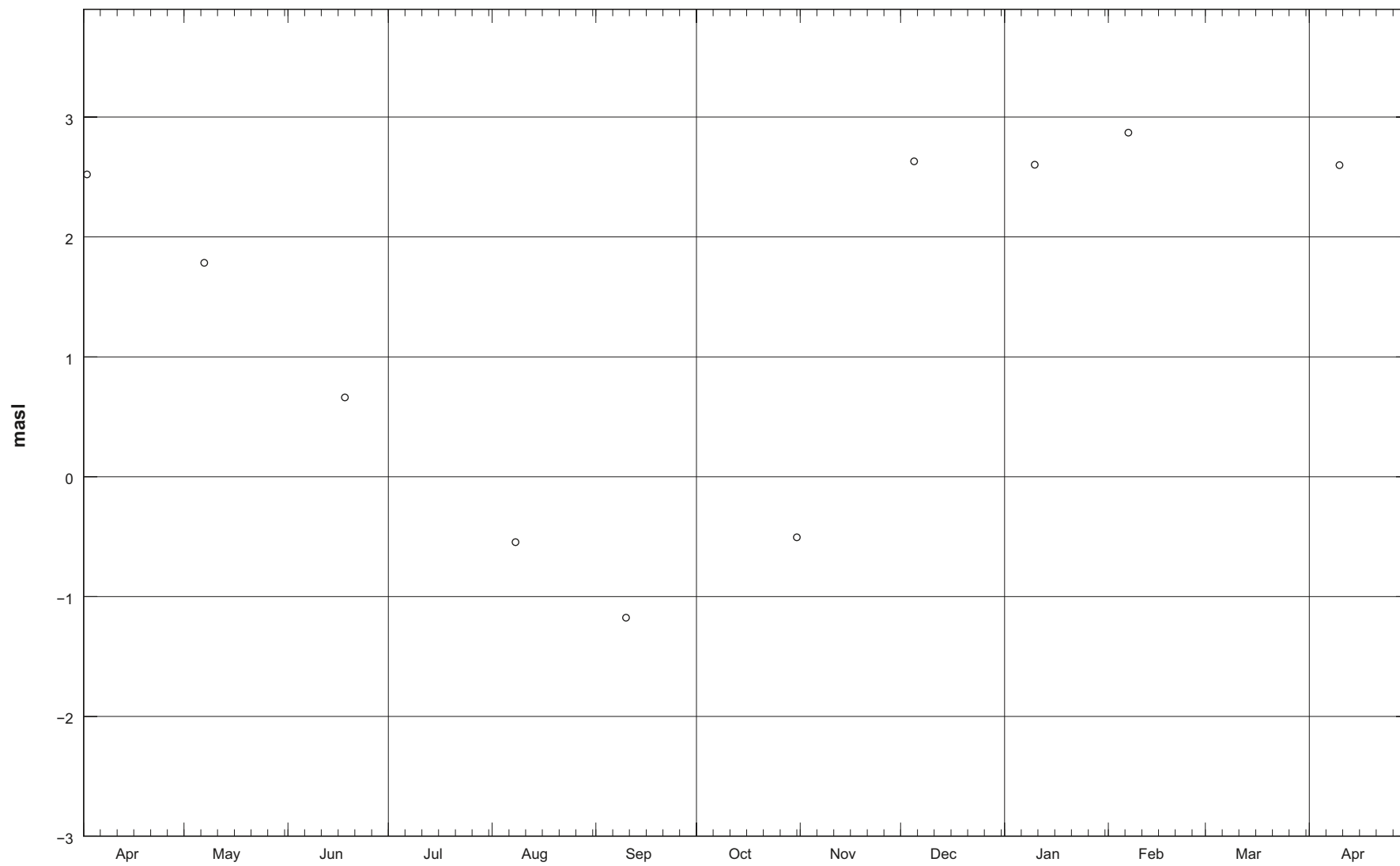
masl



Start: 2007-04-01 month

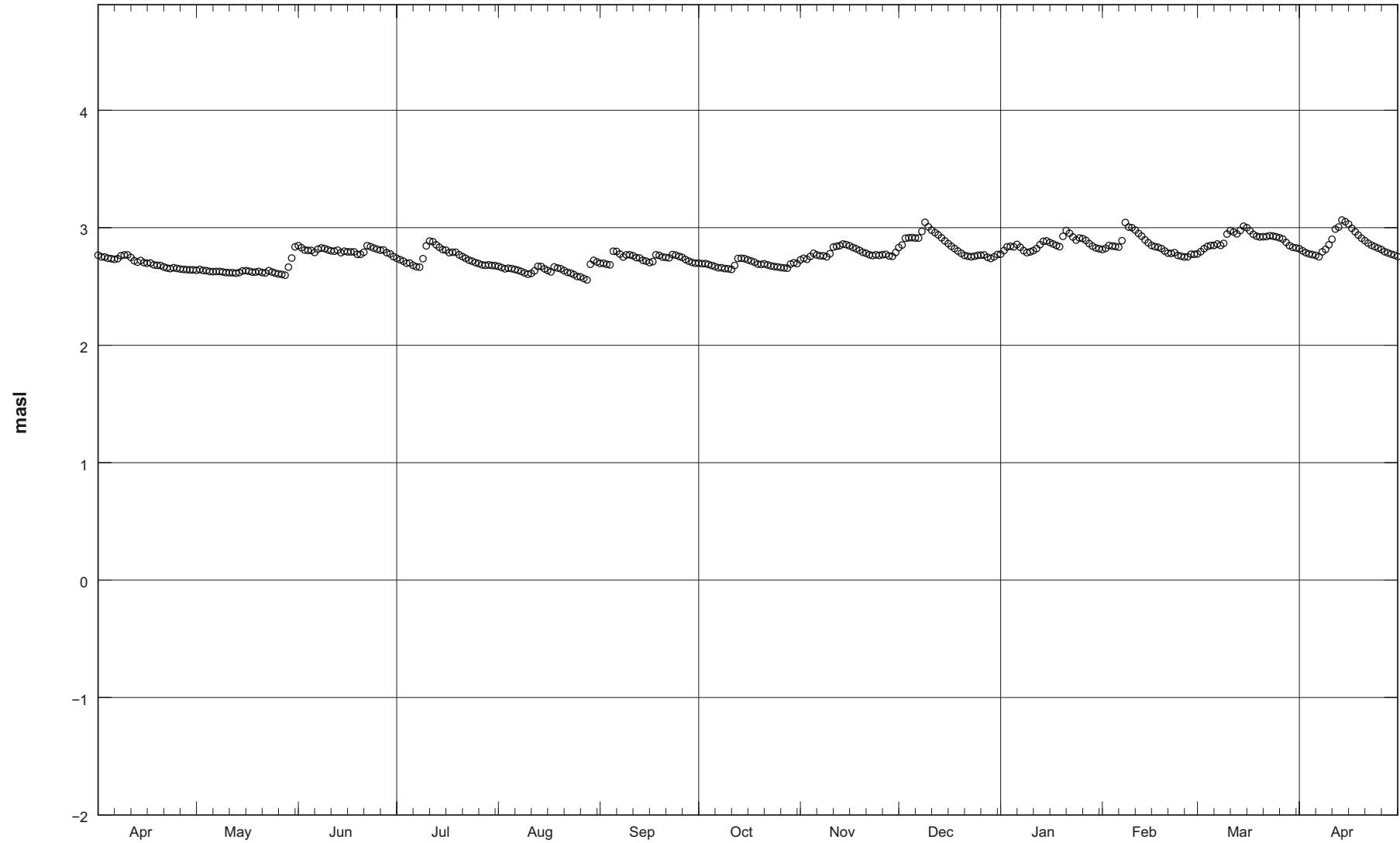
SFM0075

151



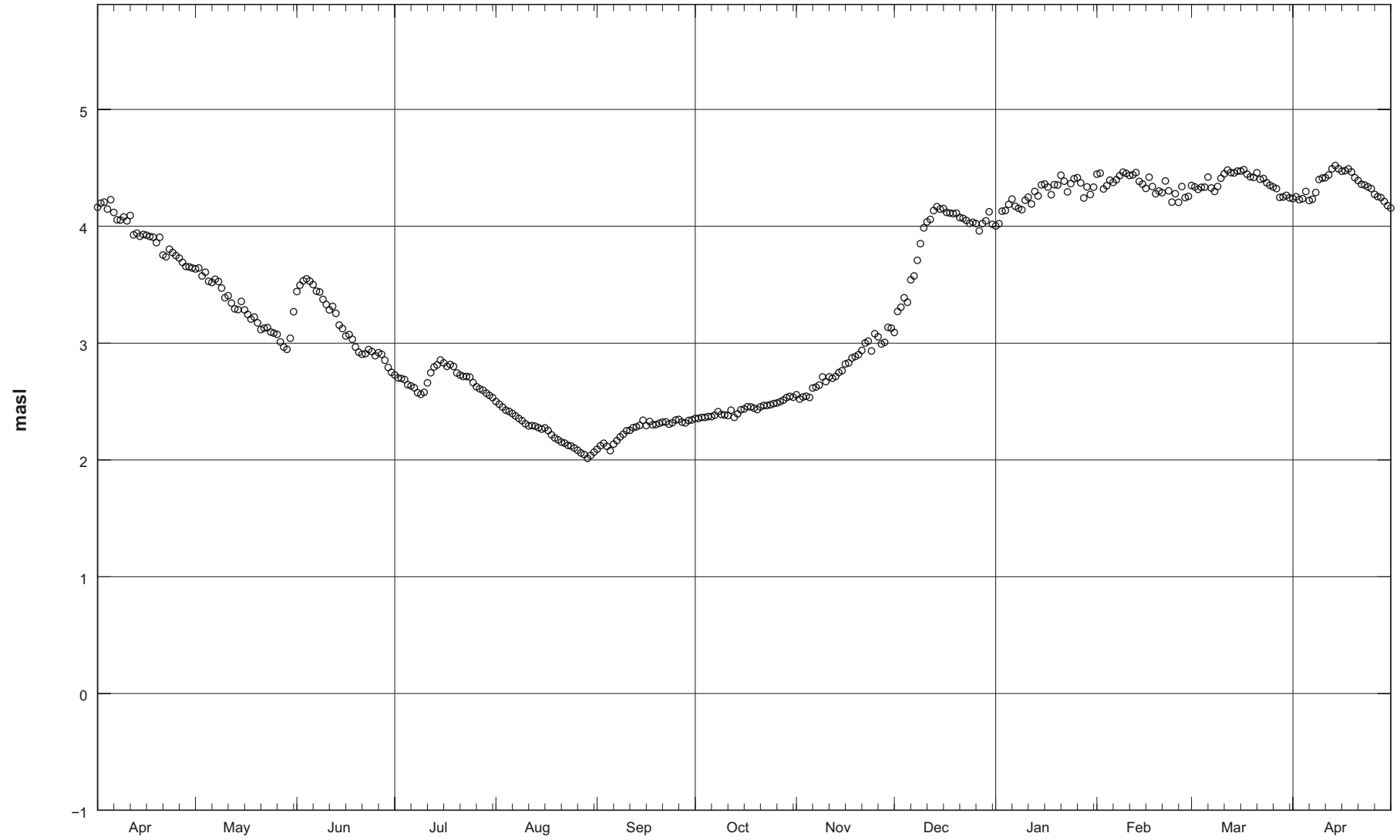
Start: 2007-04-01 month

SFM0077



Start: 2007-04-01 month

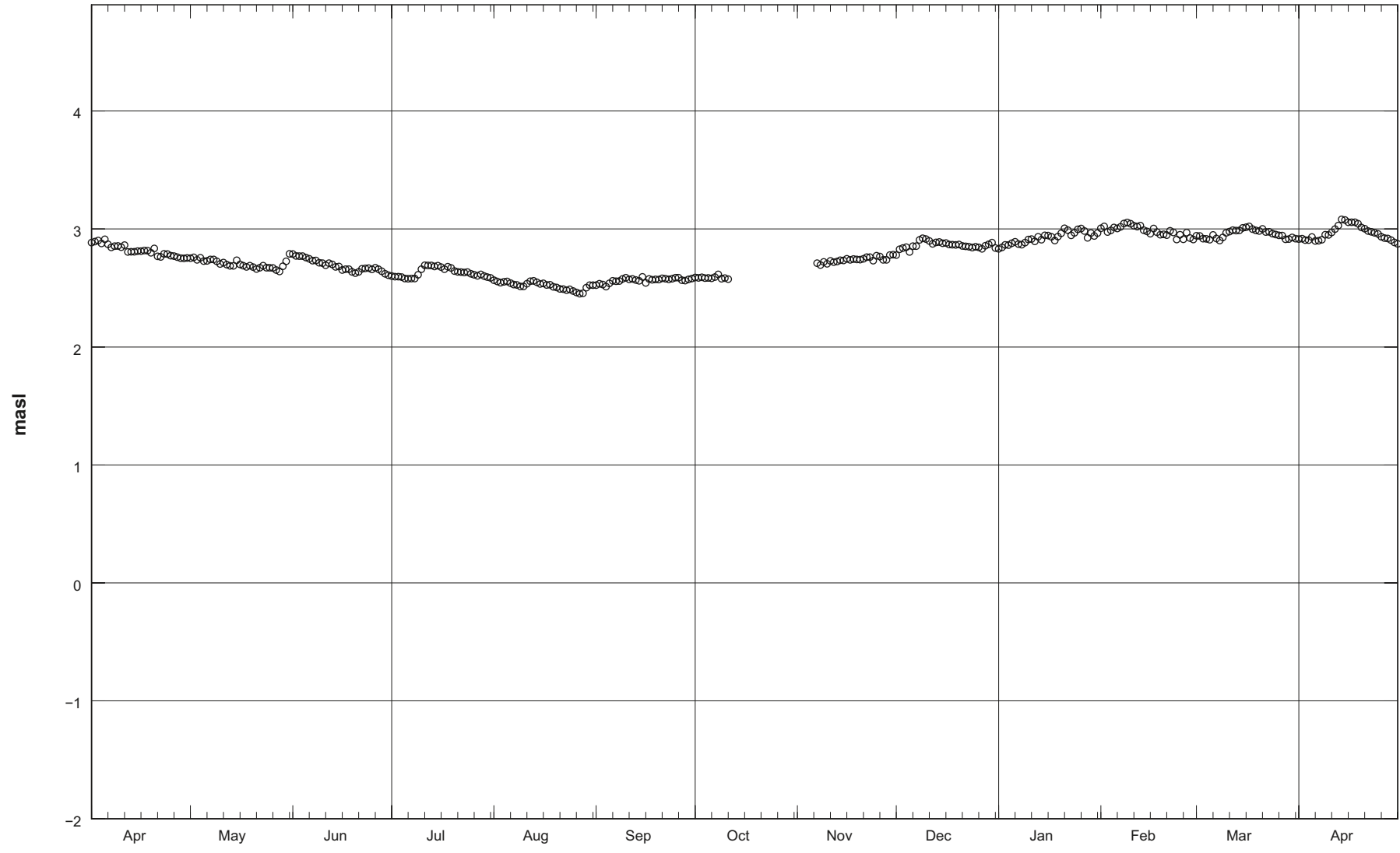
SFM0078



153

Start: 2007-04-01 month

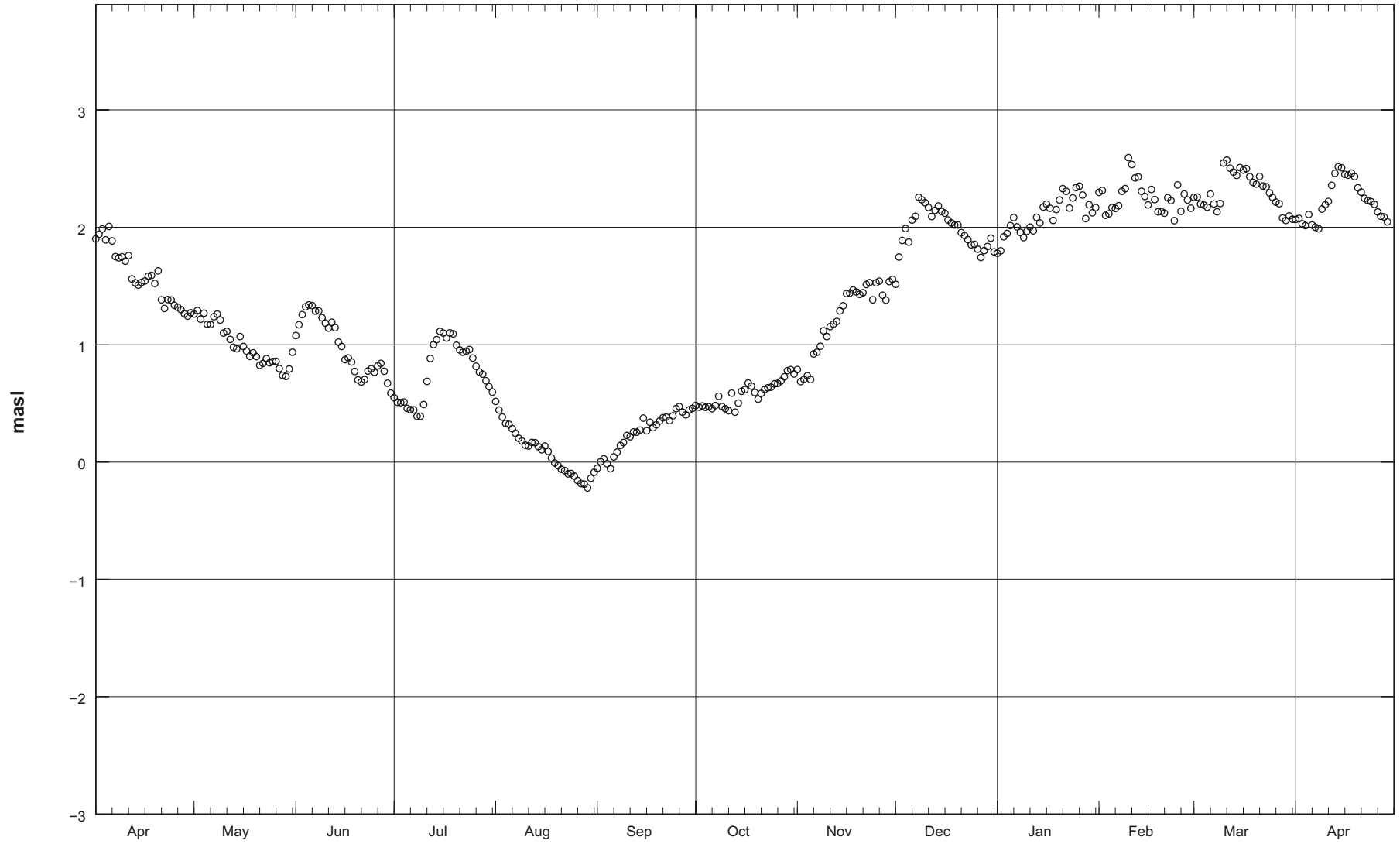
SFM0079



154

Start: 2007-04-01 month

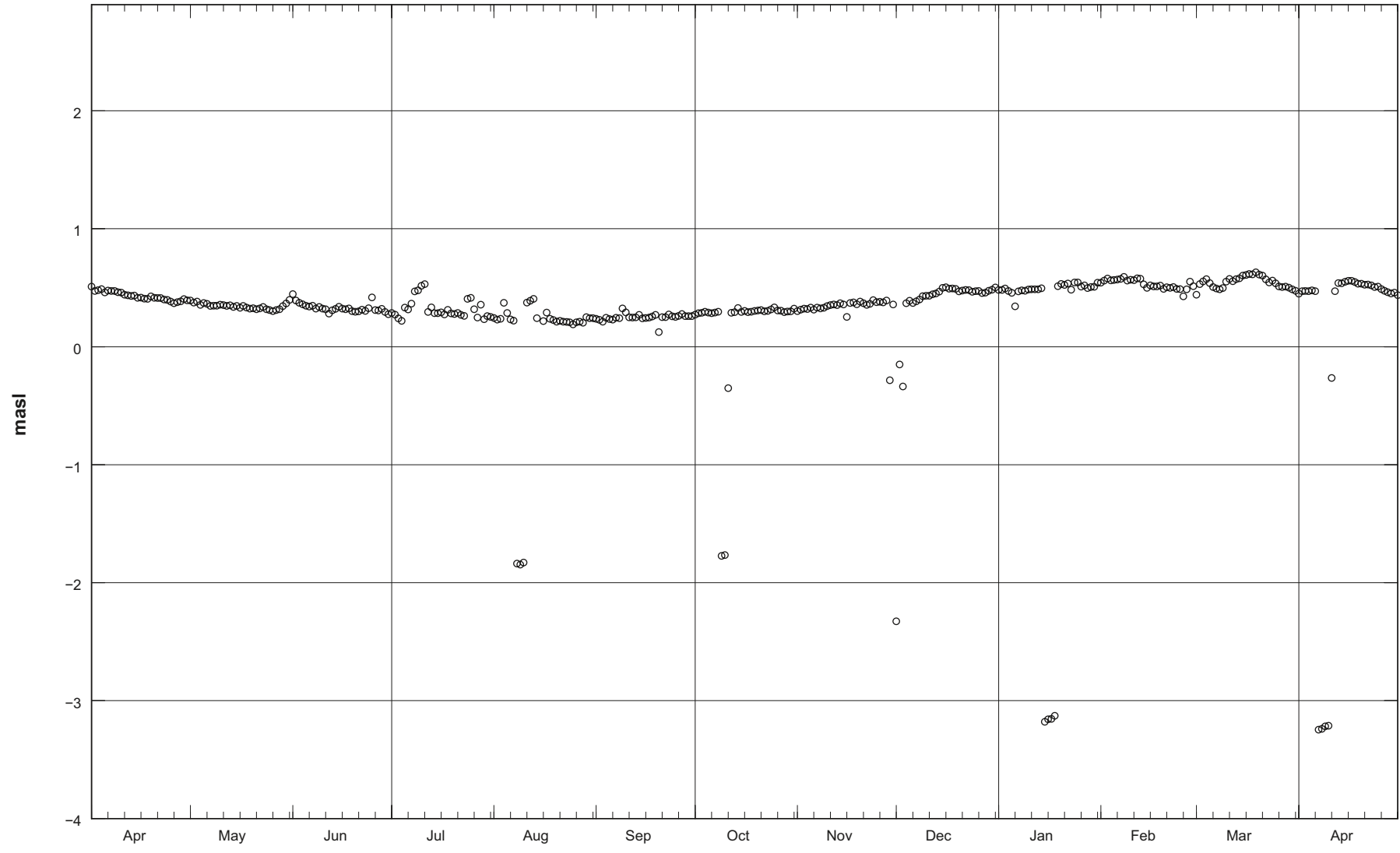
SFM0080



155

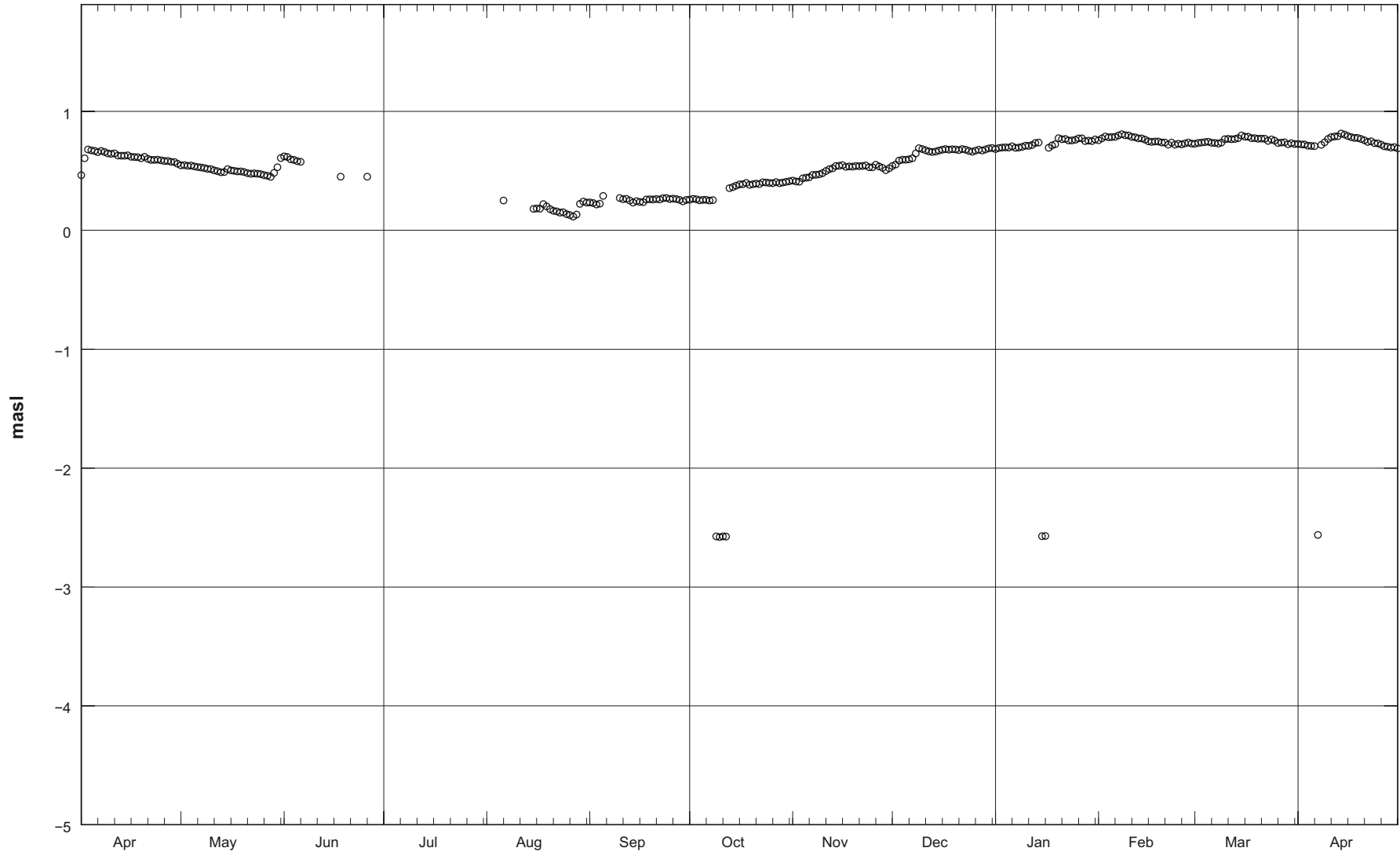
Start: 2007-04-01 month

SFM0081



Start: 2007-04-01 month

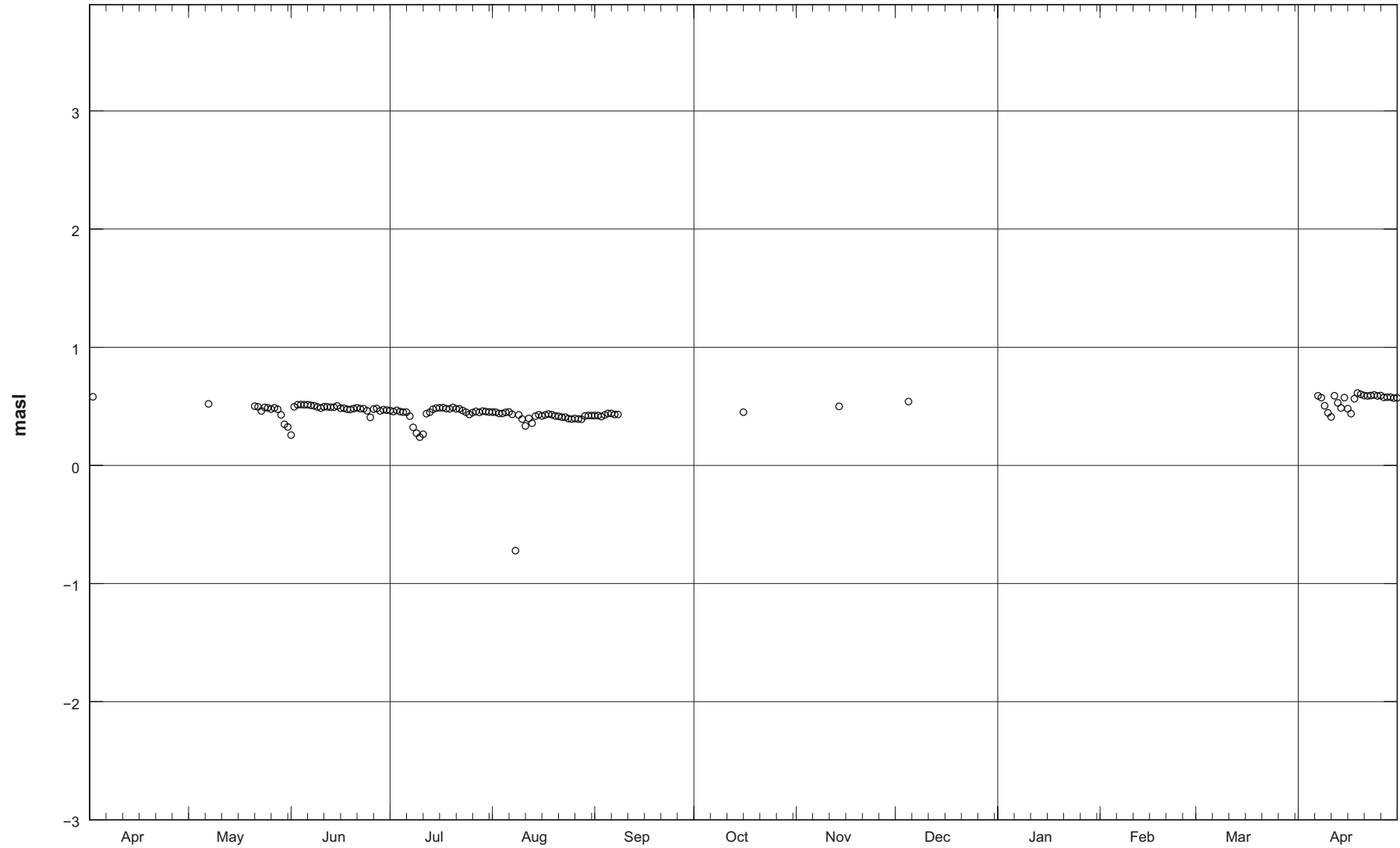
SFM0084



157

Start: 2007-04-01 month

SFM0087

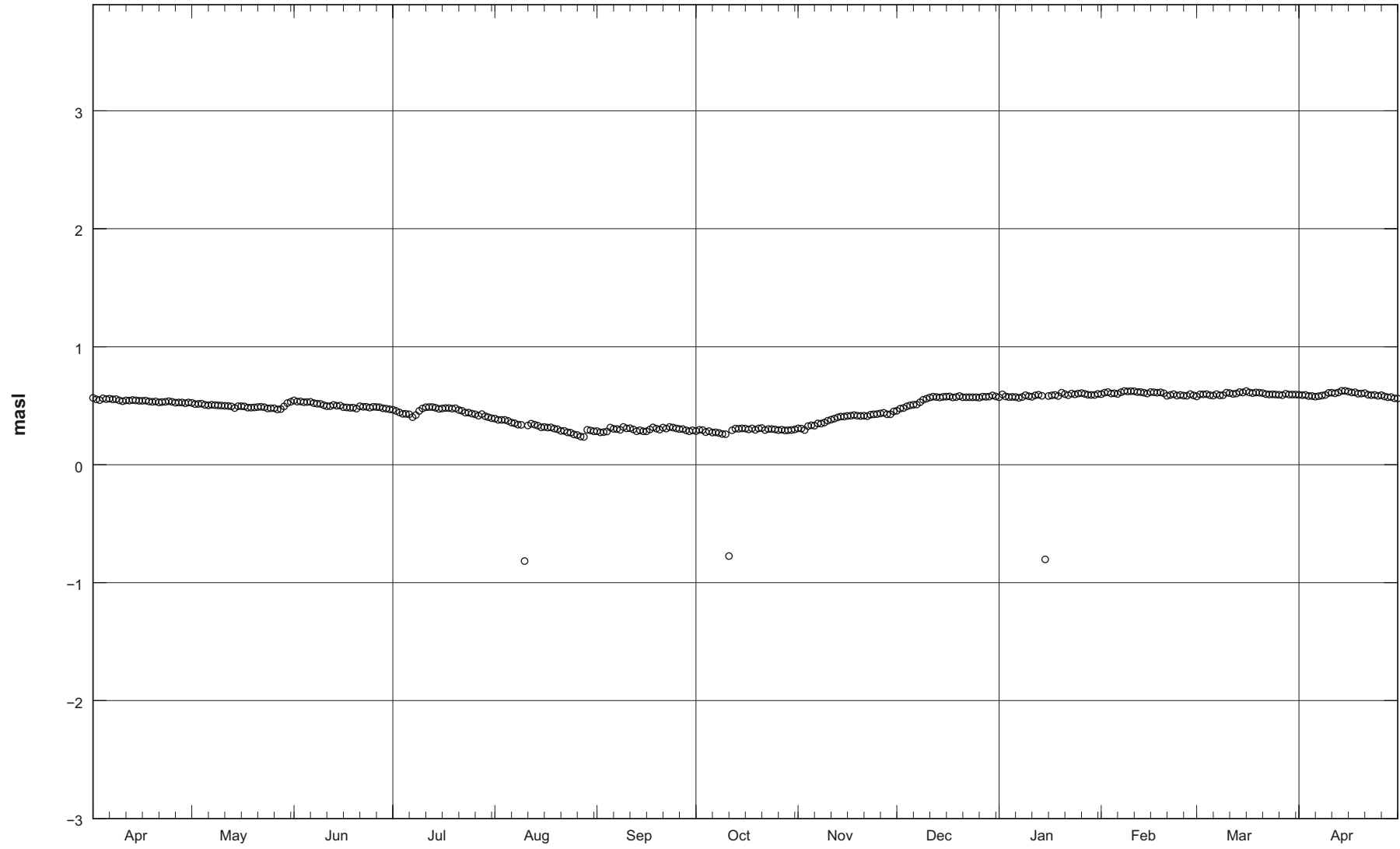


158

Start: 2007-04-01 month

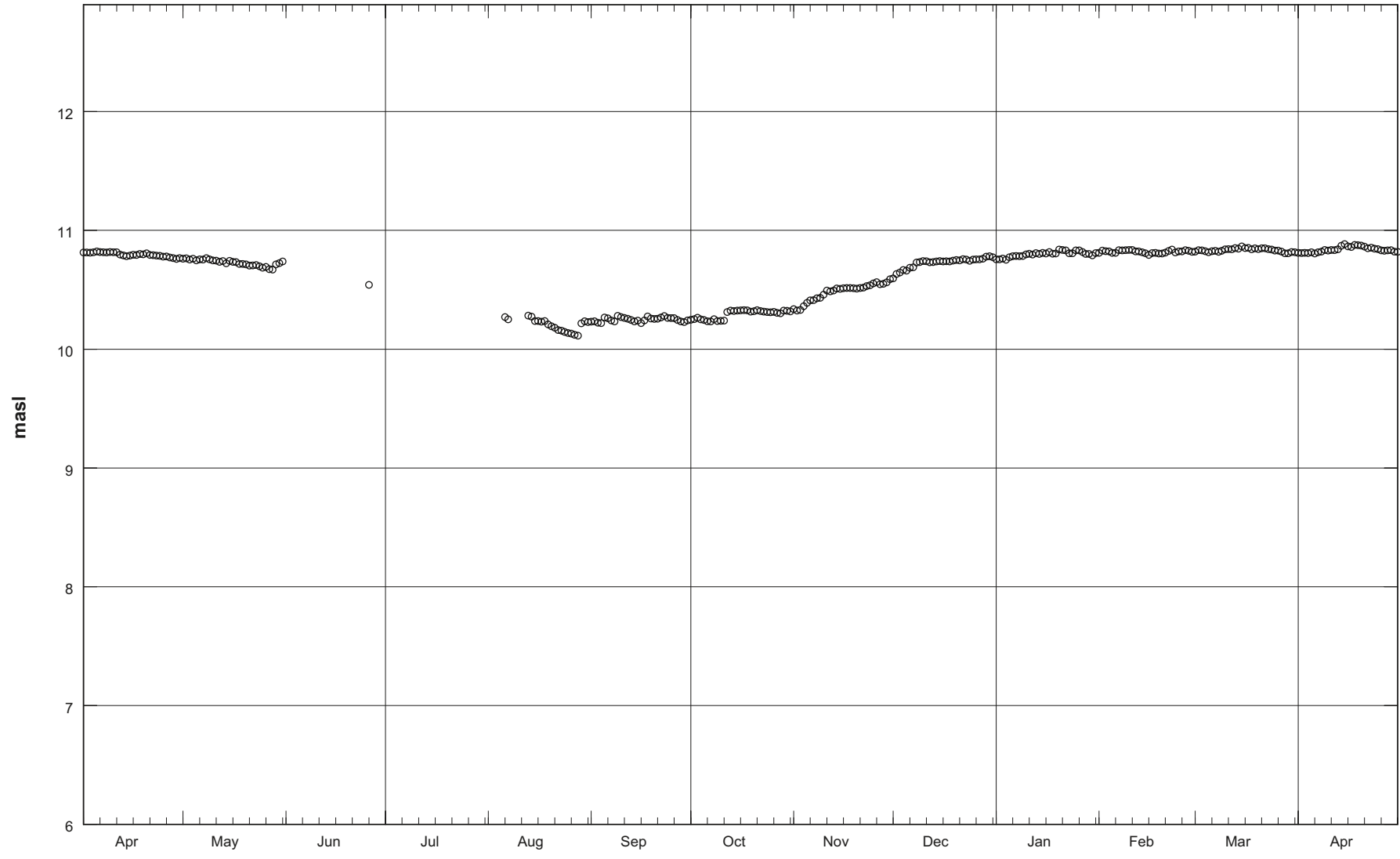
SFM0091

159



Start: 2007-04-01 month

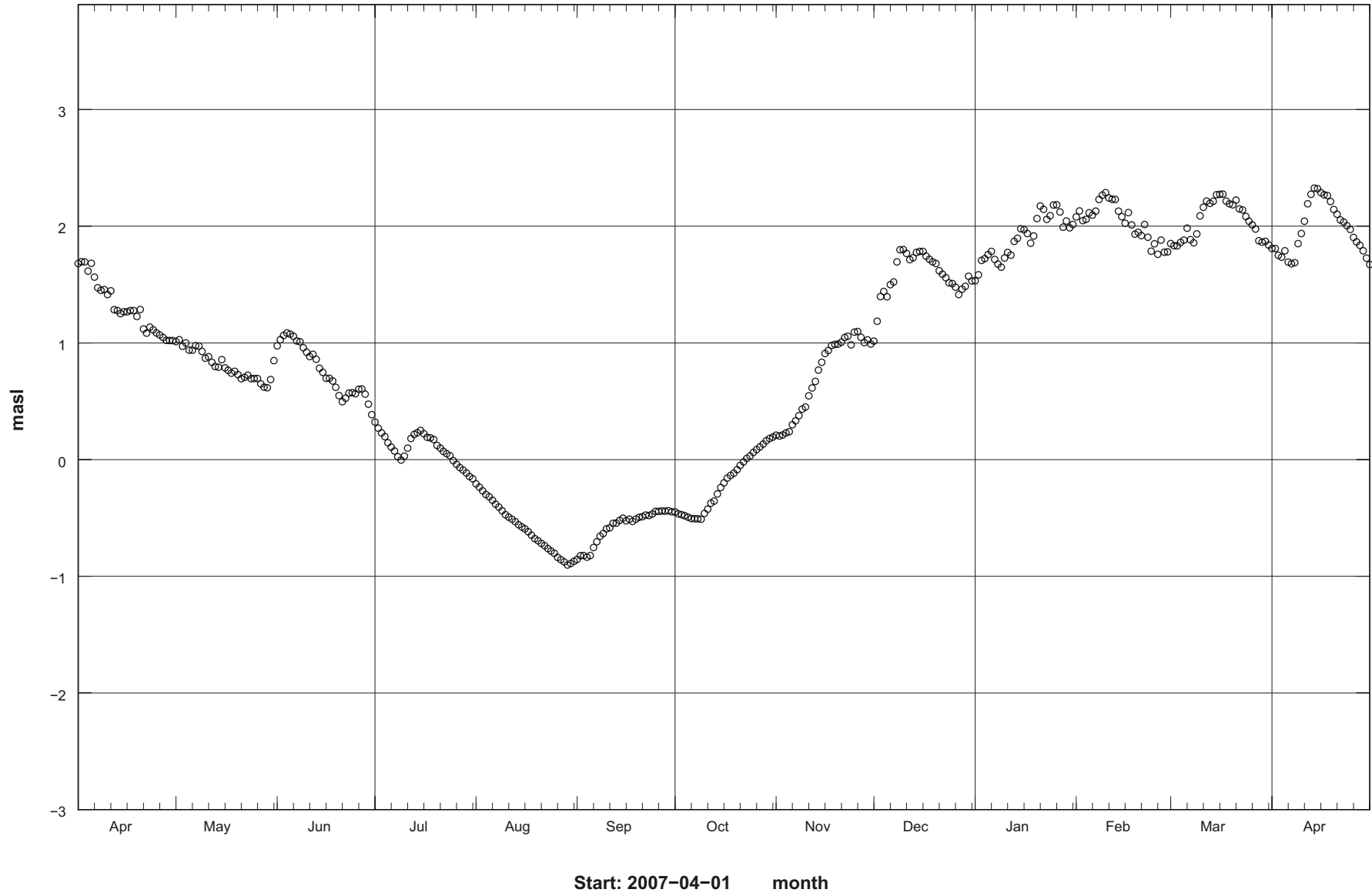
SFM0095



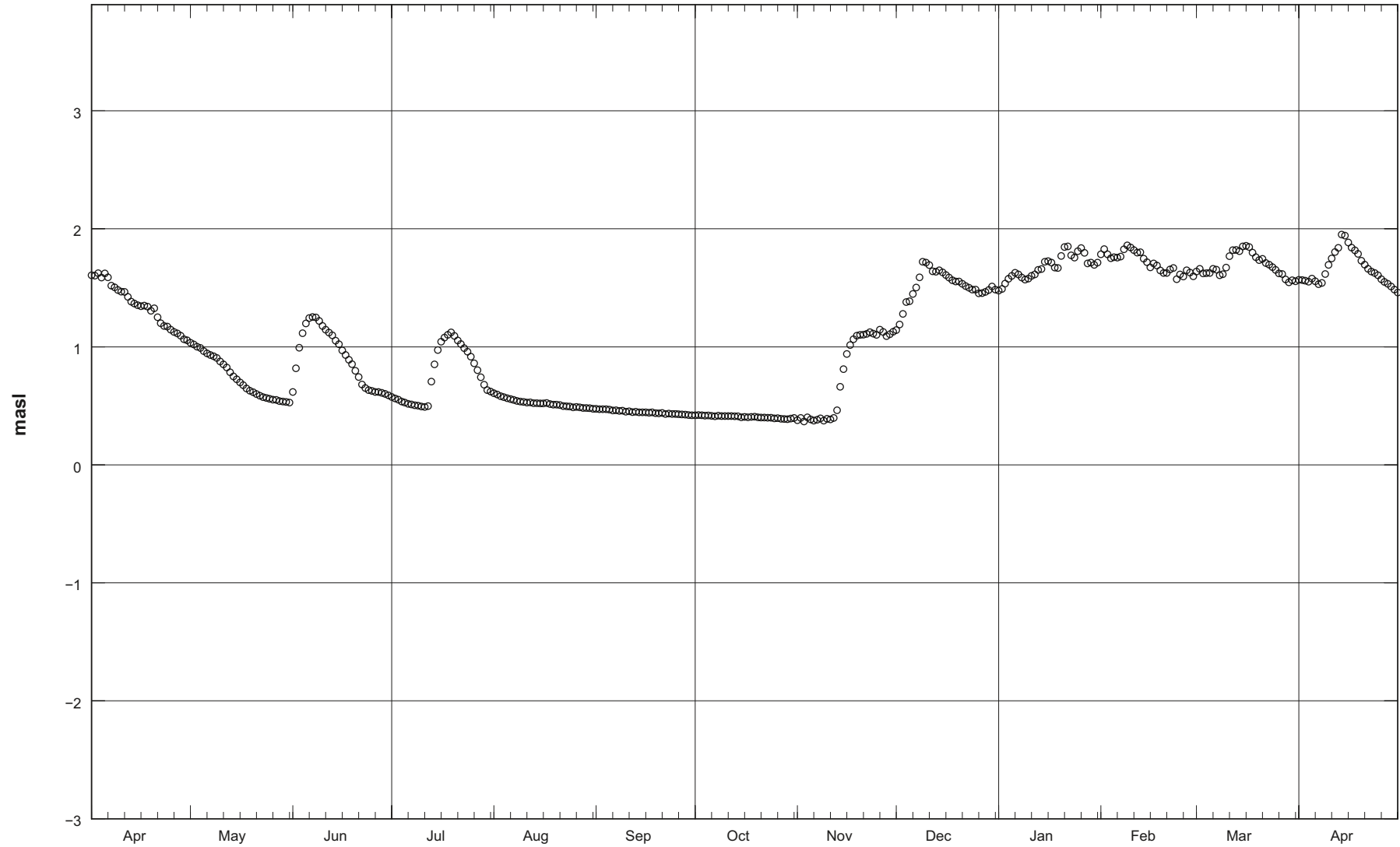
160

Start: 2007-04-01 month

SFM0104

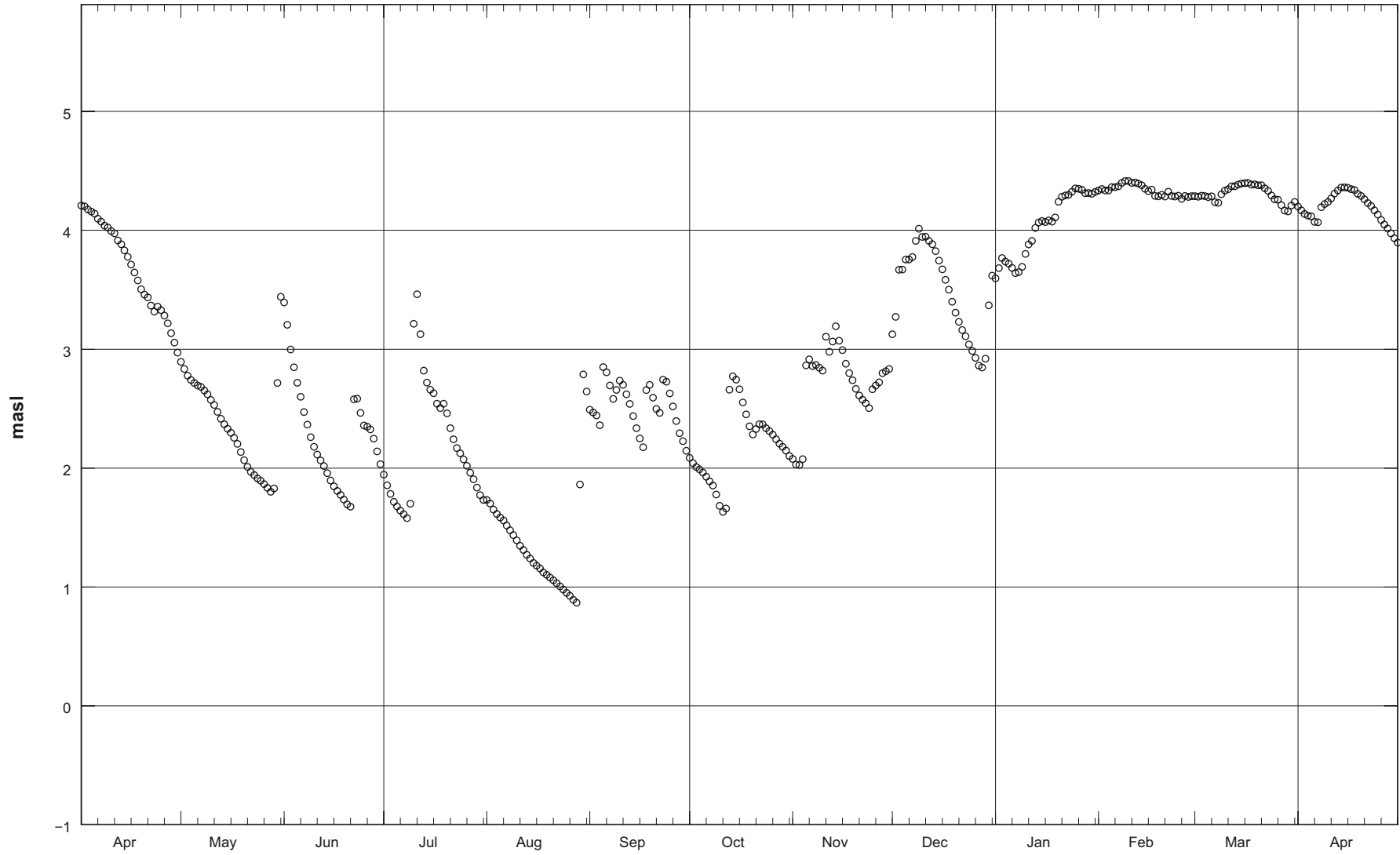


SFM0105

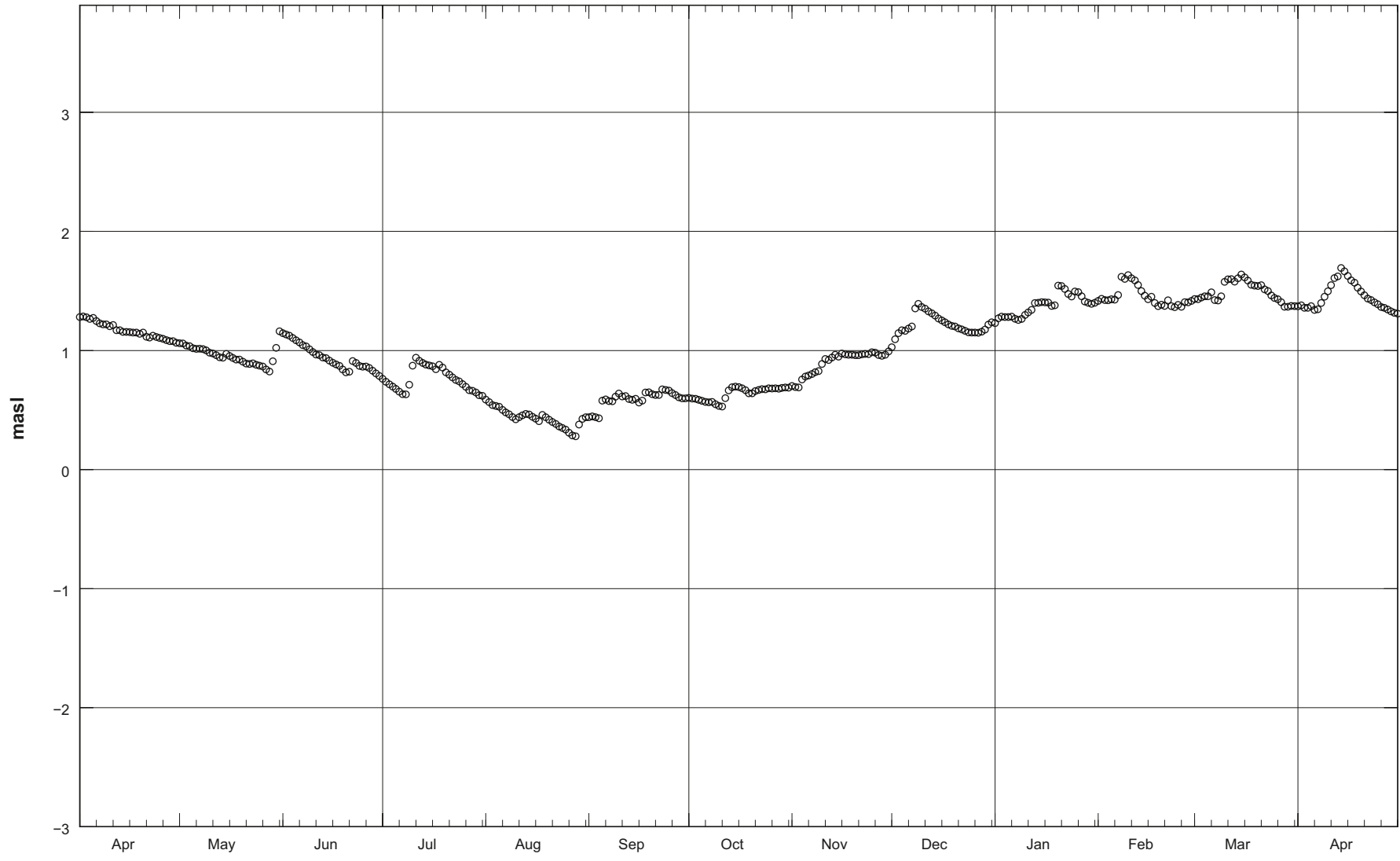


Start: 2007-04-01 month

SFM0106



SFM0107



Start: 2007-04-01 month