

Dynamical Atmospheric Correction : Era Interim (Reanalysis) versus ECMWF (Operational)

Study variable	DAC derived from ERA Interim
Reference variable	DAC derived from ECMWF Opertaional
Missions	ERS-1 (<i>e1</i>), ERS-2 (<i>e2</i>), Topex-Posedon (<i>tp</i>)
Period	[15608, 22280]

Creation date : 2011/09/02

Contents

Study overview

In this study, the Dynamical Atmospheric Correction (DAC) derived from ERA-interim analyses has been compared to the DAC correction derived from ECMWF operational model.

The impact of using these both DAC on the SSH calculation has been analyzed for Topex-Posedon, ERS-1 and ERS-2 missions :

- for Topex-Poseidon : from October 1992 (cycle 4) to October 2006 (Cycle 481)
- for ERS-1 : from October 1992 (cycle 15) to June 1996 (Cycle 53)
- for ERS-2 : from May 1995 (cycle 1) to July 2003 (Cycle 85)

The ERA Interim DAC correction is computed from ERA Interim pressure fields which correspond to the latest global atmospheric reanalysis produced by the European Centre for Medium-Range Weather Forecasts (ECMWF). For more details, see The ERA-Interim reanalysis: configuration and performance of the data assimilation system (Q. J. R. Meteorol. Soc. 137: 553-597, April 2011 A).

The reference DAC correction is computed from the ECMWF operational model pressure fields as done in CNES/AVISO products.

All the validation diagnostics displayed in this report has been performed in agreement with the Sea-Level CCI Product Validation Plan (PVP).

Diagnostic A001 (mission e1)	
Name : Temporal evolution of differences between both altimetric components	
Input data : Along-track altimetric components	
Description : The temporal evolution of global statistics (mean, variance, slope) of differences between 2 different standards of a same altimetric component (sea surface height correction, altimeter parameter, orbit) are calculated from a cyclic way (altimeter repetivity, daily, weekly, monthly) . These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements.	
<div><div><div>Mean of MOG2D_ERA - MOG2D_ECMWF Mission e1, cycles 15 to 53</div><div><div>20304050</div><div>0.05 Mean = -0.1088Slope = 0.128 mm/yr0.00-0.05-0.10-0.15-0.20</div><div>1993199419951996</div></div></div><div><div>Standard deviation of MOG2D_ERA - MOG2D_ECMWF Mission e1, cycles 15 to 53</div><div><div>20304050</div><div>2.2 Mean = 1.5052.01.81.61.41.2</div><div>1993199419951996</div></div></div></div>	

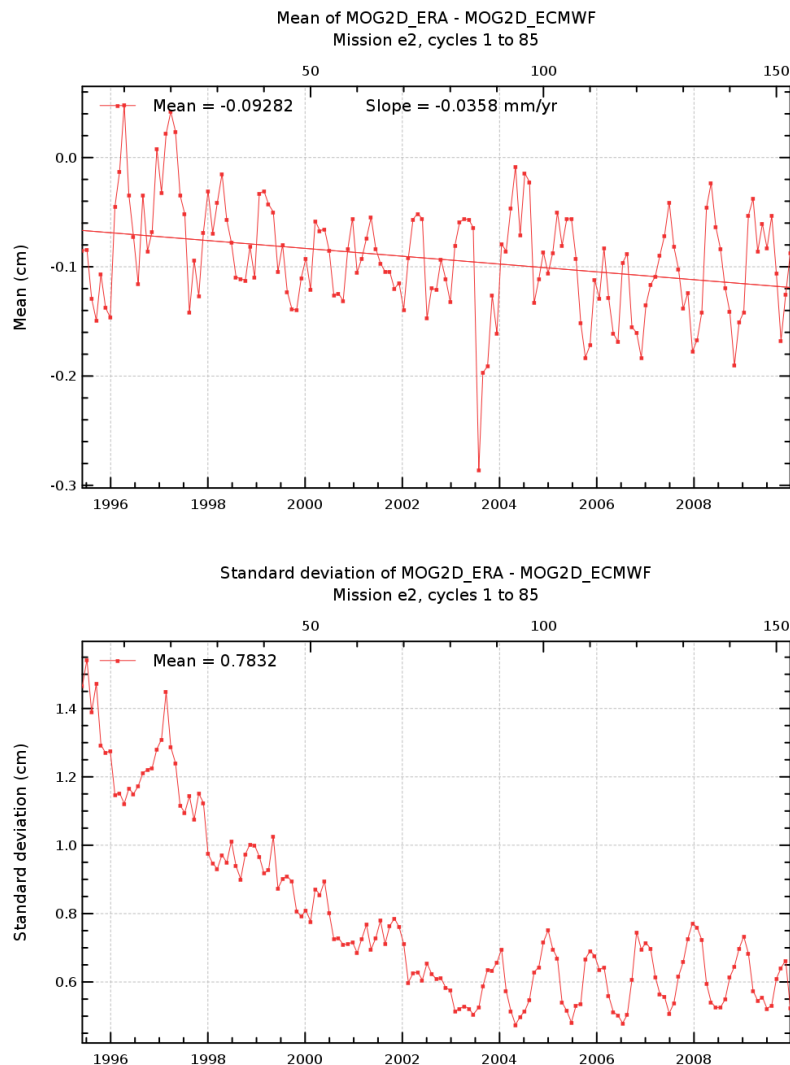
Diagnostic A001 (mission e2)

Name : Temporal evolution of differences between both altimetric components

Input data : Along-track altimetric components

Description : The temporal evolution of global statistics (mean, variance, slope) of differences between 2 different standards of a same altimetric component (sea surface height correction, altimeter parameter, orbit) are calculated from a cyclic way (altimeter repetivity, daily, weekly, monthly) . These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements.

Diagnostic type : Global internal analyses



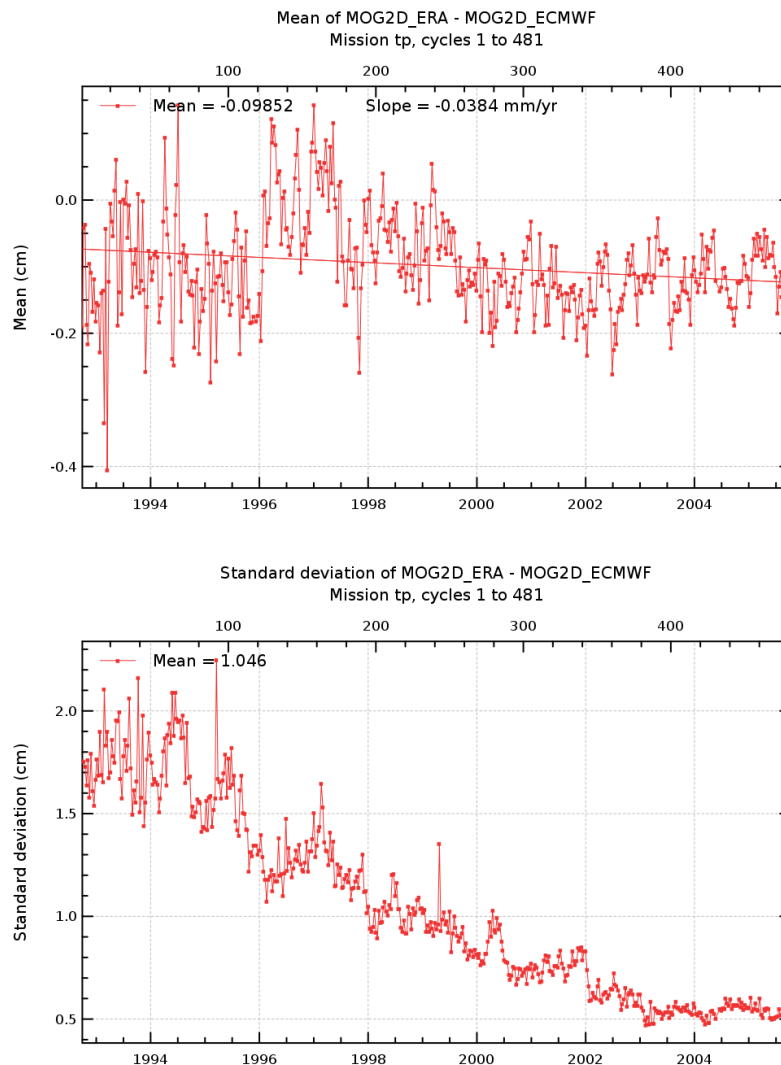
Diagnostic A001 (mission tp)

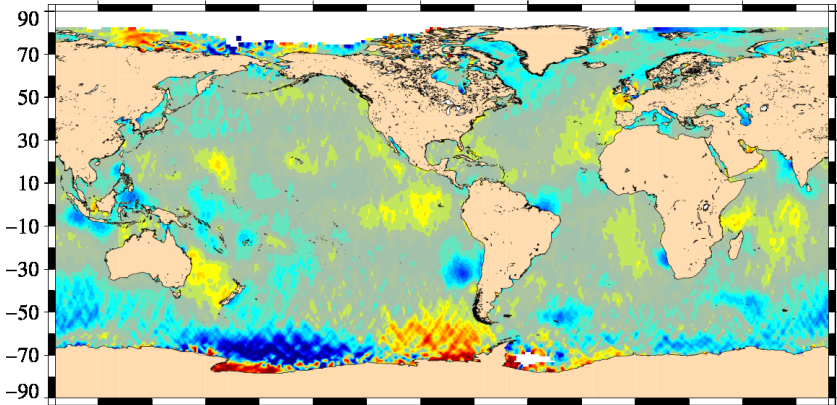
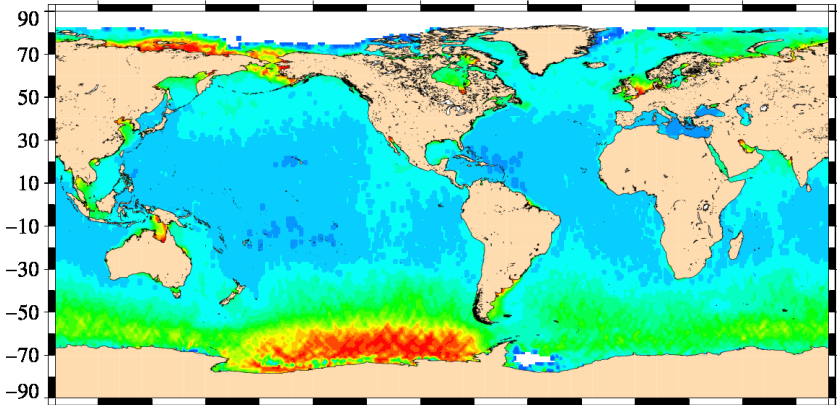
Name : Temporal evolution of differences between both altimetric components

Input data : Along-track altimetric components

Description : The temporal evolution of global statistics (mean, variance, slope) of differences between 2 different standards of a same altimetric component (sea surface height correction, altimeter parameter, orbit) are calculated from a cyclic way (altimeter repetivity, daily, weekly, monthly) . These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements.

Diagnostic type : Global internal analyses



Diagnostic type : Global internal analyses	Diagnostic A002 (mission e1)	
	Name : Map of differences between both altimetric components over all the period	
	Input data : Along-track altimetric components	
	Description : The map of global statistics (mean, standard deviation) of differences between 2 different standards of a same altimetric component (sea surface height correction, altimeter parameter, orbit) are calculated over a given period which is the longer as possible to have obtain reliable statically results. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements.	
	<div>Mean of MOG2D_ERA – MOG2D_ECMWF</div> <div>Mission e1, cycles 15 to 53</div> <div></div> <div>-1.81914 -0.797301 0.224537 1.246375</div> <div>Mean (cm)</div> <div>Standard deviation of MOG2D_ERA – MOG2D_ECMWF</div> <div>Mission e1, cycles 15 to 53</div> <div></div> <div>-1.58038 0.18552 1.95143 3.71734</div> <div>Standard deviation (cm)</div>	

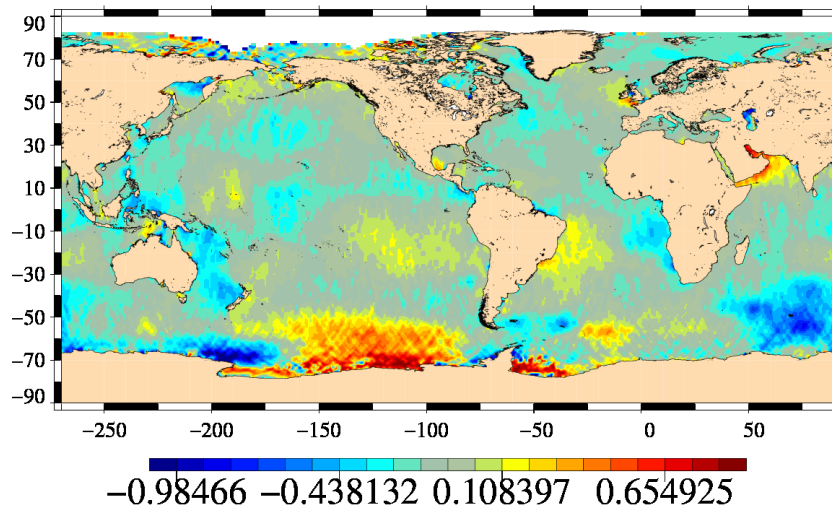
Diagnostic A002 (mission e2)

Name : Map of differences between both altimetric components over all the period

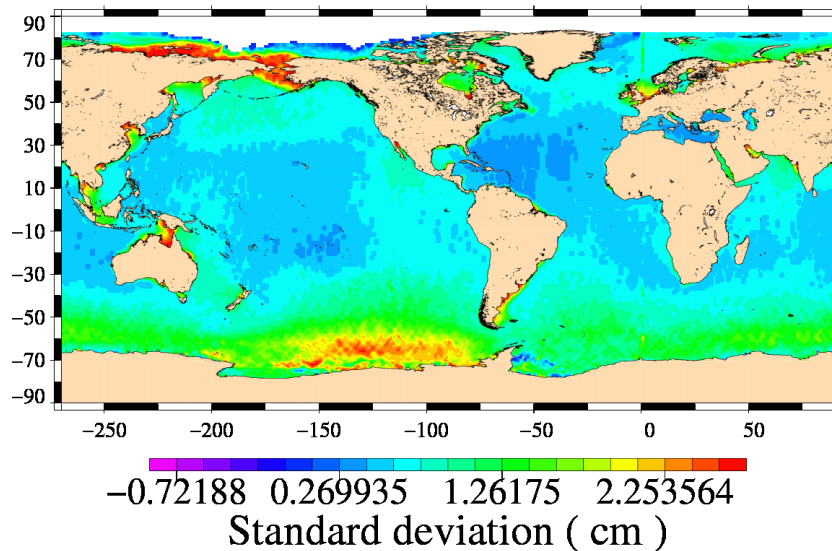
Input data : Along-track altimetric components

Description : The map of global statistics (mean, standard deviation) of differences between 2 different standards of a same altimetric component (sea surface height correction, altimeter parameter, orbit) are calculated over a given period which is the longer as possible to have obtain reliable statically results. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements.

Mean of MOG2D_ERA – MOG2D_ECMWF
Mission e2, cycles 1 to 85



Standard deviation of MOG2D_ERA – MOG2D_ECMWF
Mission e2, cycles 1 to 85



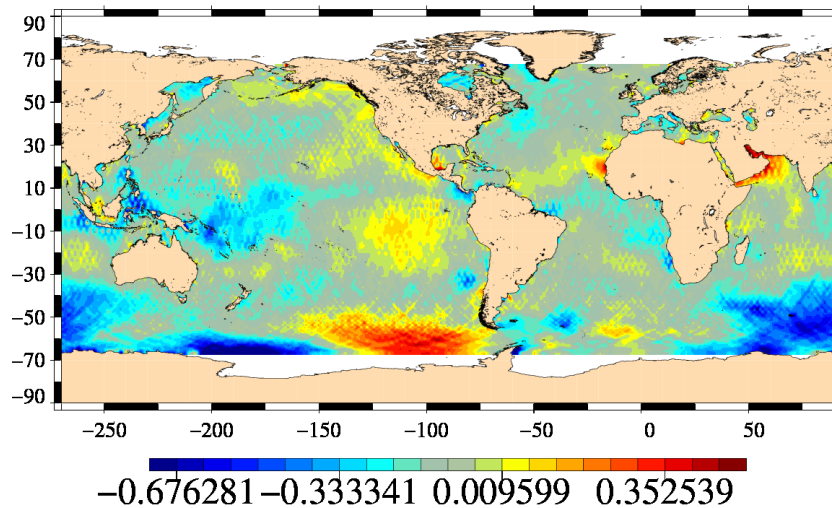
Diagnostic A002 (mission tp)

Name : Map of differences between both altimetric components over all the period

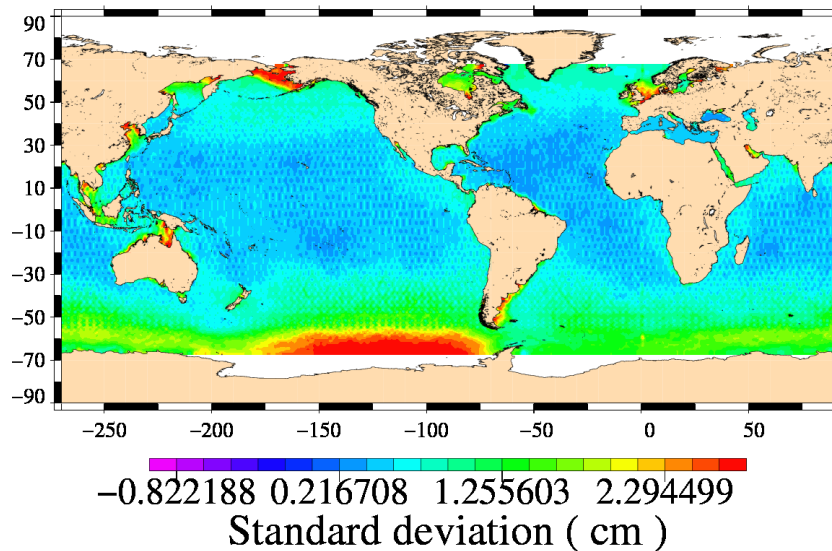
Input data : Along-track altimetric components

Description : The map of global statistics (mean, standard deviation) of differences between 2 different standards of a same altimetric component (sea surface height correction, altimeter parameter, orbit) are calculated over a given period which is the longer as possible to have obtain reliable statically results. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements.

Mean of MOG2D_ERA – MOG2D_ECMWF
Mission tp, cycles 1 to 481



Standard deviation of MOG2D_ERA – MOG2D_ECMWF
Mission tp, cycles 1 to 481

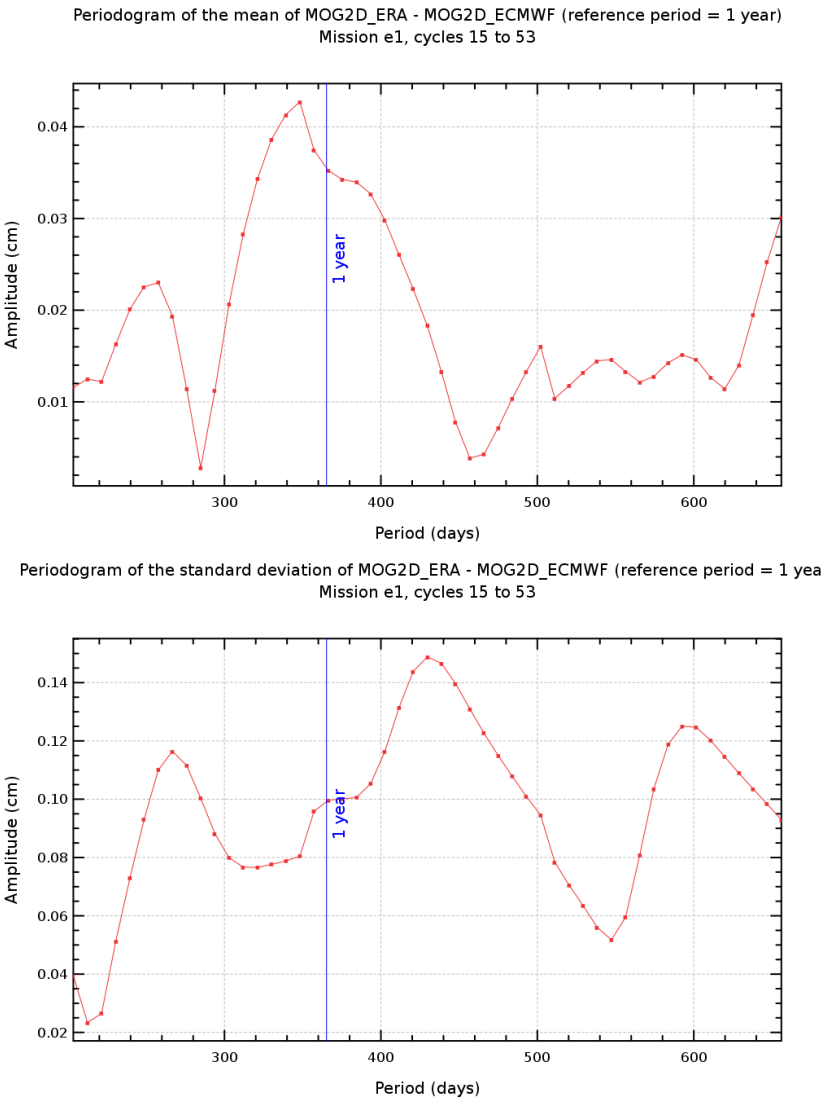


Diagnostic A003_a (mission e1)

Name : Periodogram derived from temporal evolution of altimetric component differences

Input data : Along-track altimetric components

Description : The periodogram derived from temporal and global altimetric component differences is calculated from cycle by cycle monitoring of altimetric component differences (derived from diagnostic A001). It is calculated from the mean or the variance differences. The Periodogram can be calculated for all the periods, but it can be focused on a dedicated period.



Diagnostic A003_b (mission e1)

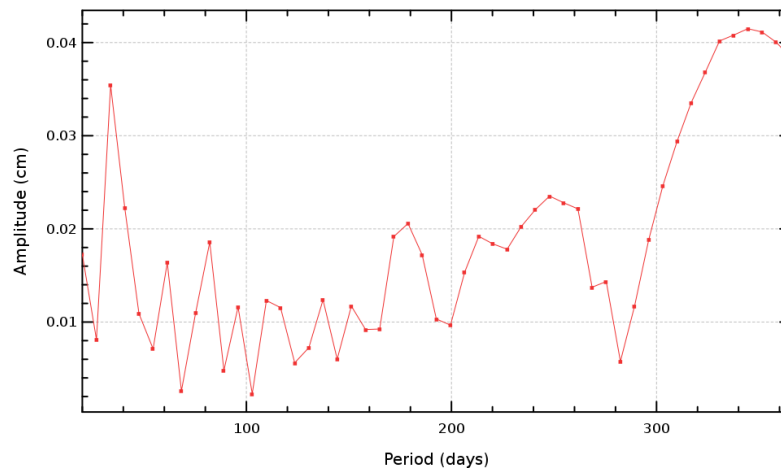
Name : Periodogram derived from temporal evolution of altimetric component differences

Input data : Along-track altimetric components

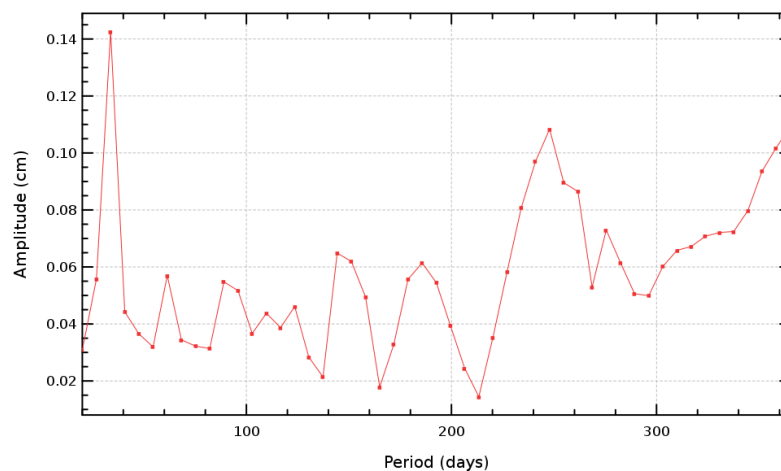
Description : The periodogram derived from temporal and global altimetric component differences is calculated from cycle by cycle monitoring of altimetric component differences (derived from diagnostic A001). It is calculated from the mean or the variance differences. The Periodogram can be calculated for all the periods, but it can be focused on a dedicated period.

Diagnostic type : Global internal analyses

Periodogram of the mean of MOG2D_ERA - MOG2D_ECMWF (period = [0, 1 year])
Mission e1, cycles 15 to 53



Periodogram of the standard deviation of MOG2D_ERA - MOG2D_ECMWF (period = [0, 1 year])
Mission e1, cycles 15 to 53



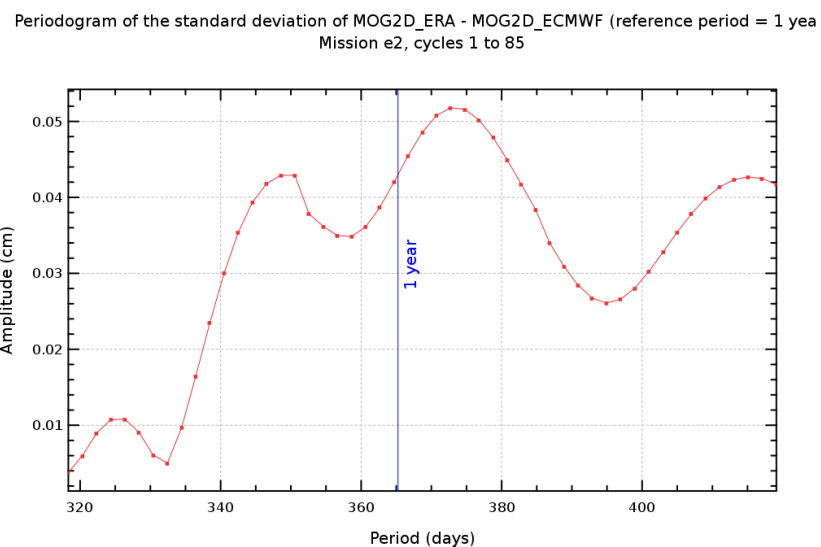
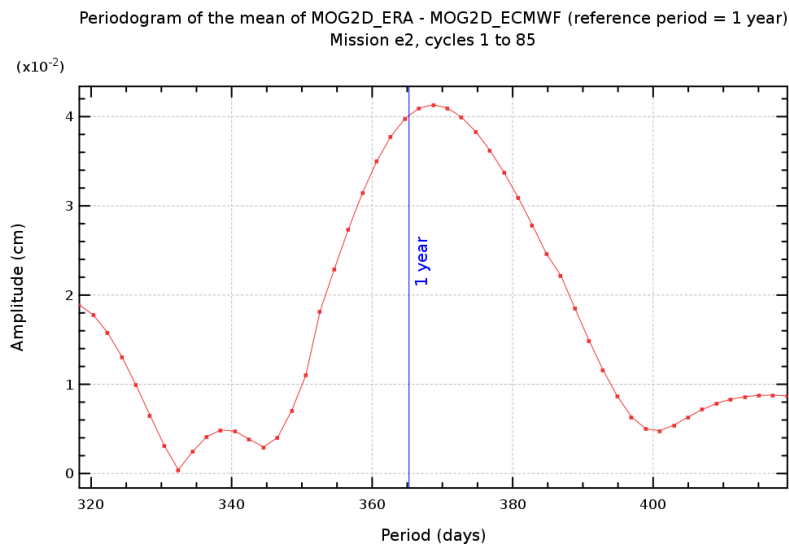
Diagnostic A003_a (mission e2)

Name : Periodogram derived from temporal evolution of altimetric component differences

Input data : Along-track altimetric components

Description : The periodogram derived from temporal and global altimetric component differences is calculated from cycle by cycle monitoring of altimetric component differences (derived from diagnostic A001). It is calculated from the mean or the variance differences. The Periodogram can be calculated for all the periods, but it can be focused on a dedicated period.

Diagnostic type : Global internal analyses



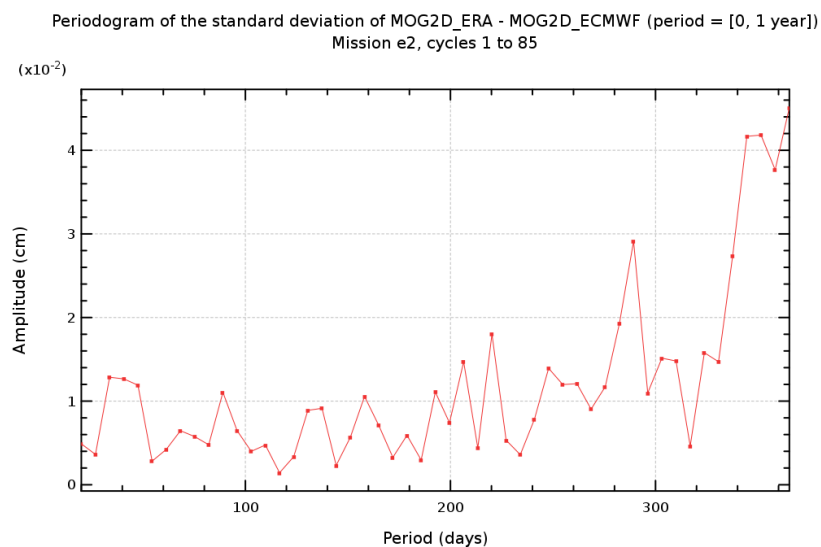
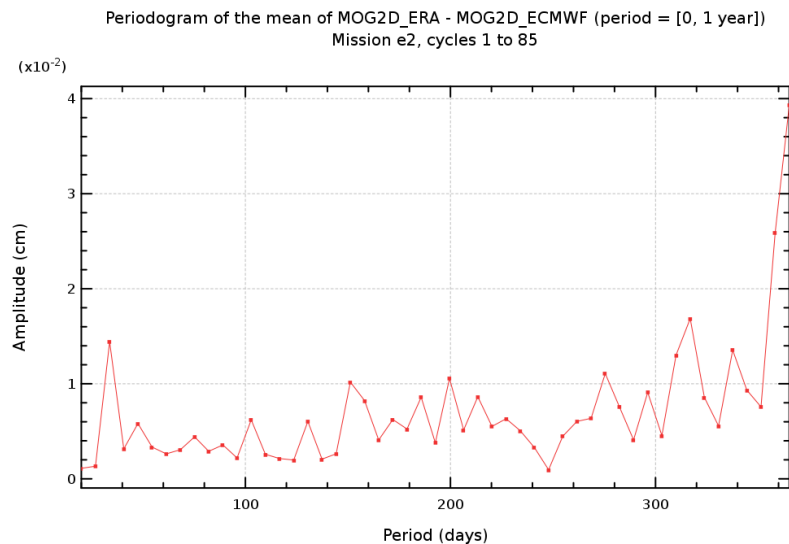
Diagnostic A003_b (mission e2)

Name : Periodogram derived from temporal evolution of altimetric component differences

Input data : Along-track altimetric components

Description : The periodogram derived from temporal and global altimetric component differences is calculated from cycle by cycle monitoring of altimetric component differences (derived from diagnostic A001). It is calculated from the mean or the variance differences. The Periodogram can be calculated for all the periods, but it can be focused on a dedicated period.

Diagnostic type : Global internal analyses



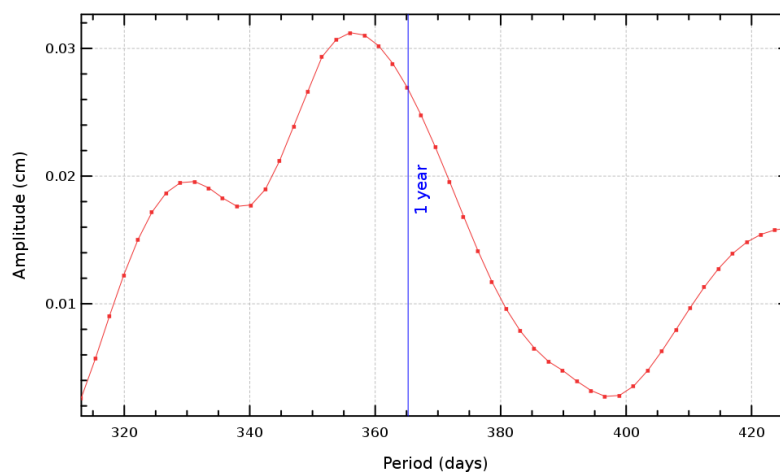
Diagnostic A003_a (mission tp)

Name : Periodogram derived from temporal evolution of altimetric component differences

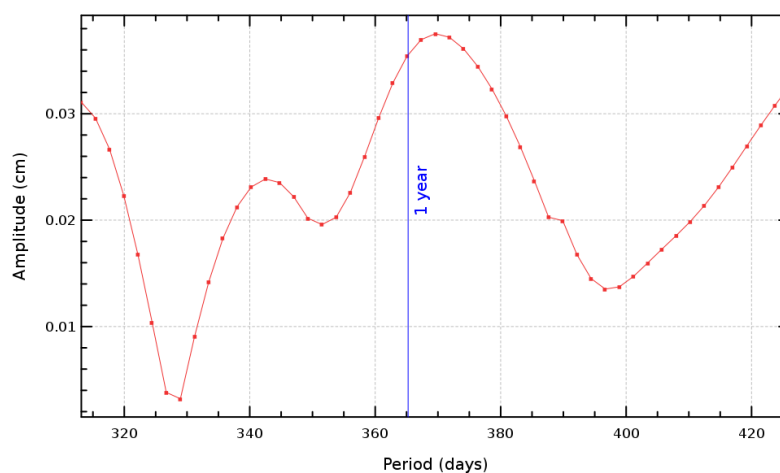
Input data : Along-track altimetric components

Description : The periodogram derived from temporal and global altimetric component differences is calculated from cycle by cycle monitoring of altimetric component differences (derived from diagnostic A001). It is calculated from the mean or the variance differences. The Periodogram can be calculated for all the periods, but it can be focused on a dedicated period.

Periodogram of the mean of MOG2D_ERA - MOG2D_ECMWF (reference period = 1 year)
Mission tp, cycles 1 to 481



Periodogram of the standard deviation of MOG2D_ERA - MOG2D_ECMWF (reference period = 1 year)
Mission tp, cycles 1 to 481

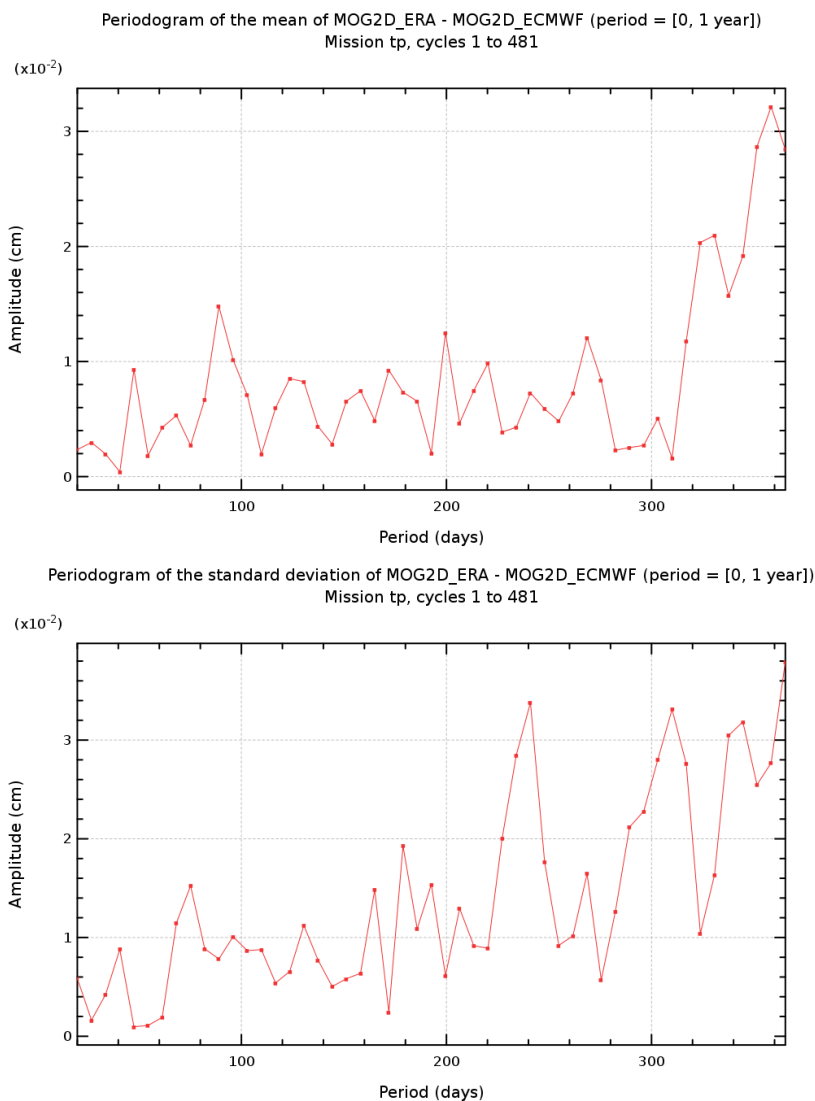


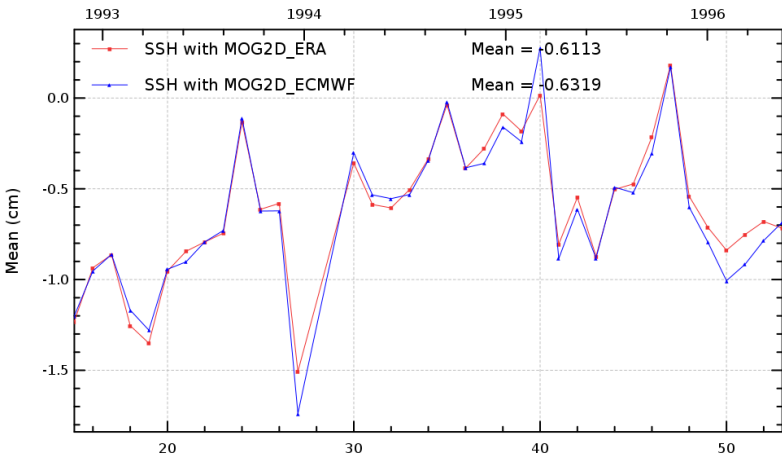
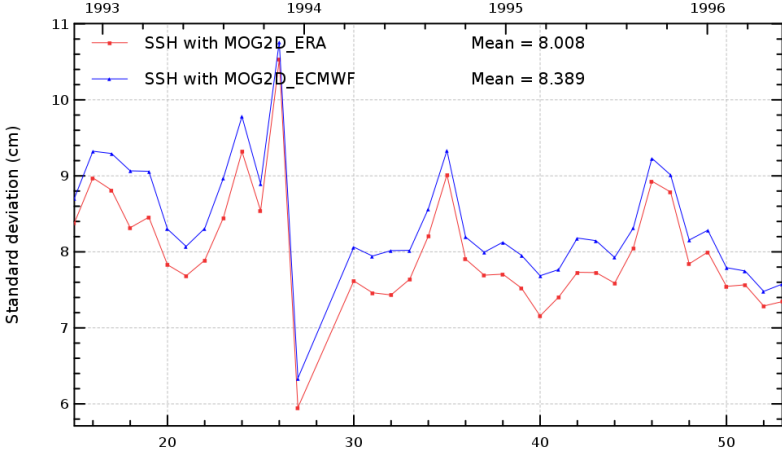
Diagnostic A003_b (mission tp)

Name : Periodogram derived from temporal evolution of altimetric component differences

Input data : Along-track altimetric components

Description : The periodogram derived from temporal and global altimetric component differences is calculated from cycle by cycle monitoring of altimetric component differences (derived from diagnostic A001). It is calculated from the mean or the variance differences. The Periodogram can be calculated for all the periods, but it can be focused on a dedicated period.



Diagnostic A101 (mission e1)	
Name : Temporal evolution of SSH crossovers	
Input data : Sea Surface Height (SSH) crossovers	
<p>Description : The temporal evolution of global statistics (mean, standard deviation) of SSH differences are calculated from a cyclic way (altimeter repetivity, daily, weekly, monthly) using successively both altimetric components in the SSH calculation. SSH crossovers are the differences between ascending and descending passes for time differences between both passes lower than 10 days (in order to reduce the effect of the oceanic variability).</p>	
<div><div><div>Mean of SSH crossovers Mission e1, cycles 15 to 53</div><div></div></div><div><div>Standard deviations of SSH crossovers Mission e1, cycles 15 to 53</div><div></div></div></div>	

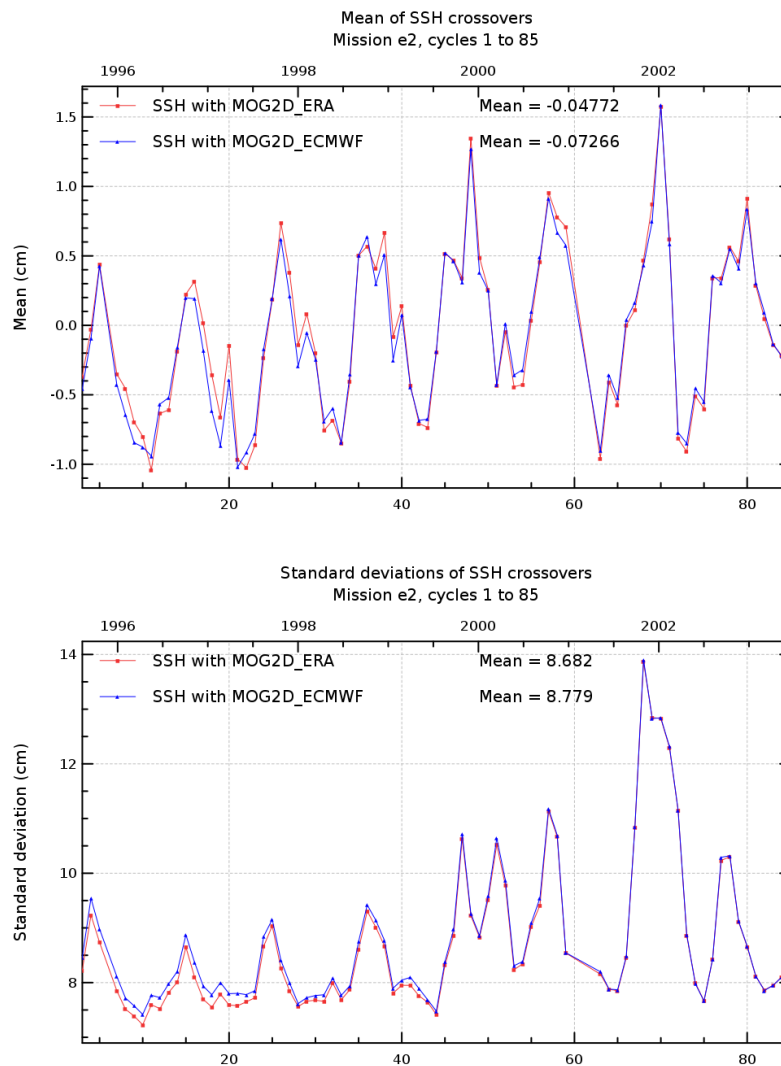
Diagnostic A101 (mission e2)

Name : Temporal evolution of SSH crossovers

Input data : Sea Surface Height (SSH) crossovers

Description : The temporal evolution of global statistics (mean, standard deviation) of SSH differences are calculated from a cyclic way (altimeter repetivity, daily, weekly, monthly) using successively both altimetric components in the SSH calculation. SSH crossovers are the differences between ascending and descending passes for time differences between both passes lower than 10 days (in order to reduce the effect of the oceanic variability).

Diagnostic type : Global internal analyses



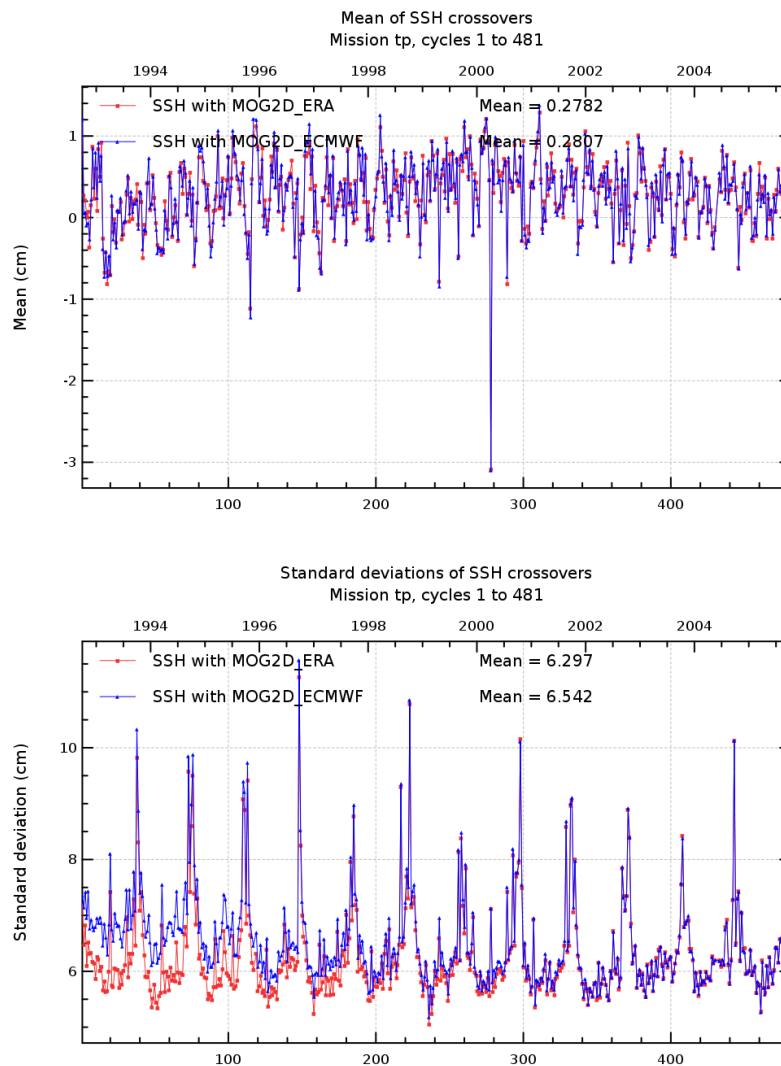
Diagnostic A101 (mission tp)

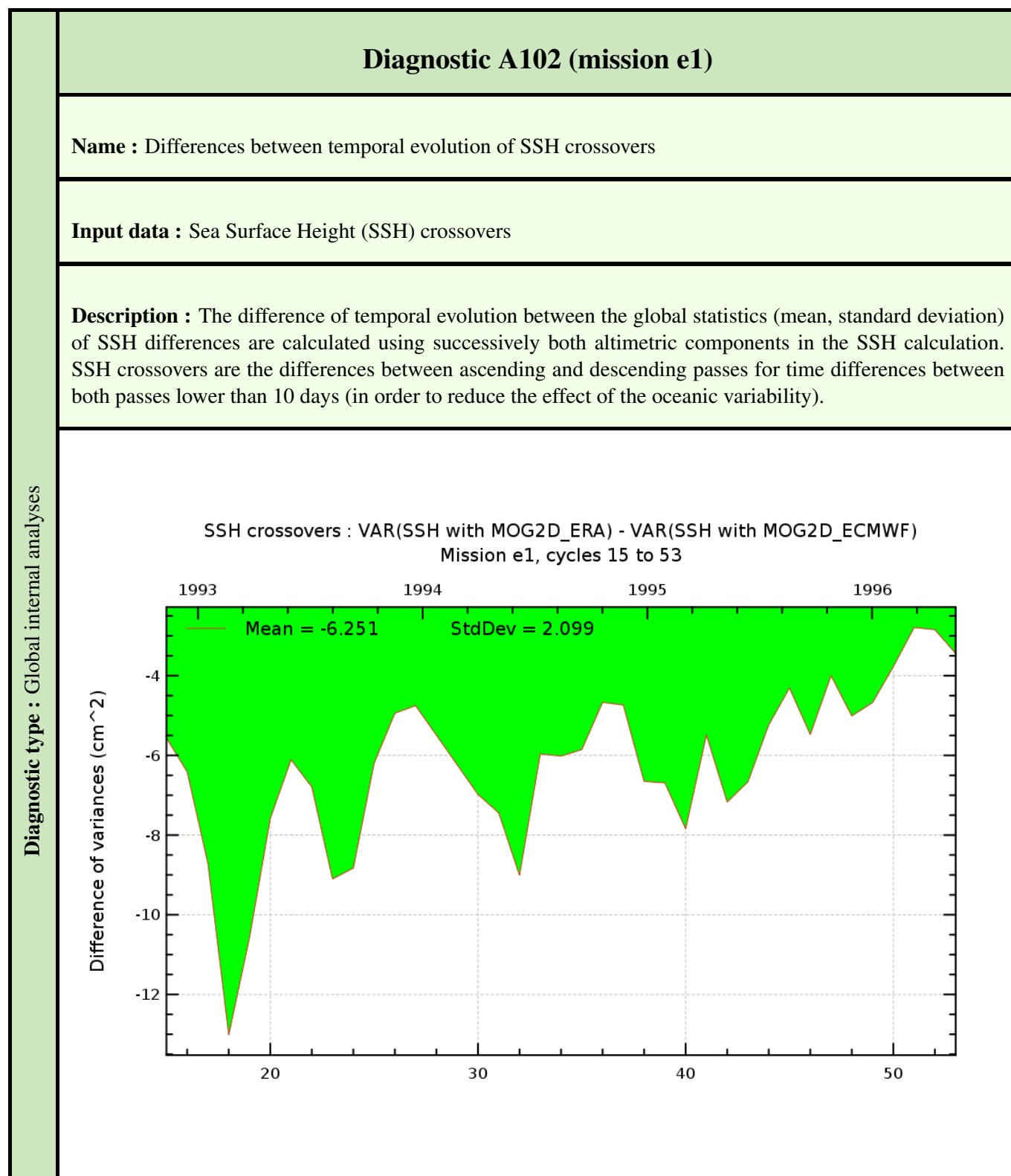
Name : Temporal evolution of SSH crossovers

Input data : Sea Surface Height (SSH) crossovers

Description : The temporal evolution of global statistics (mean, standard deviation) of SSH differences are calculated from a cyclic way (altimeter repetivity, daily, weekly, monthly) using successively both altimetric components in the SSH calculation. SSH crossovers are the differences between ascending and descending passes for time differences between both passes lower than 10 days (in order to reduce the effect of the oceanic variability).

Diagnostic type : Global internal analyses





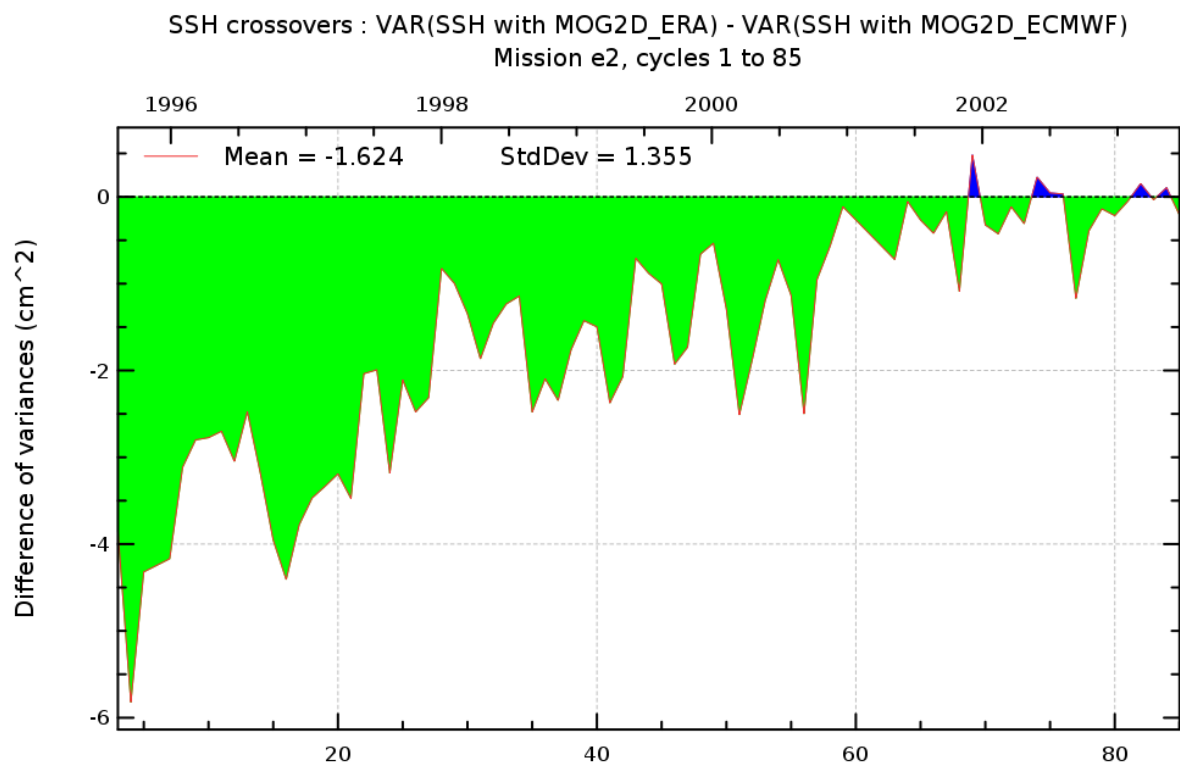
Diagnostic A102 (mission e2)

Name : Differences between temporal evolution of SSH crossovers

Input data : Sea Surface Height (SSH) crossovers

Description : The difference of temporal evolution between the global statistics (mean, standard deviation) of SSH differences are calculated using successively both altimetric components in the SSH calculation. SSH crossovers are the differences between ascending and descending passes for time differences between both passes lower than 10 days (in order to reduce the effect of the oceanic variability).

Diagnostic type : Global internal analyses



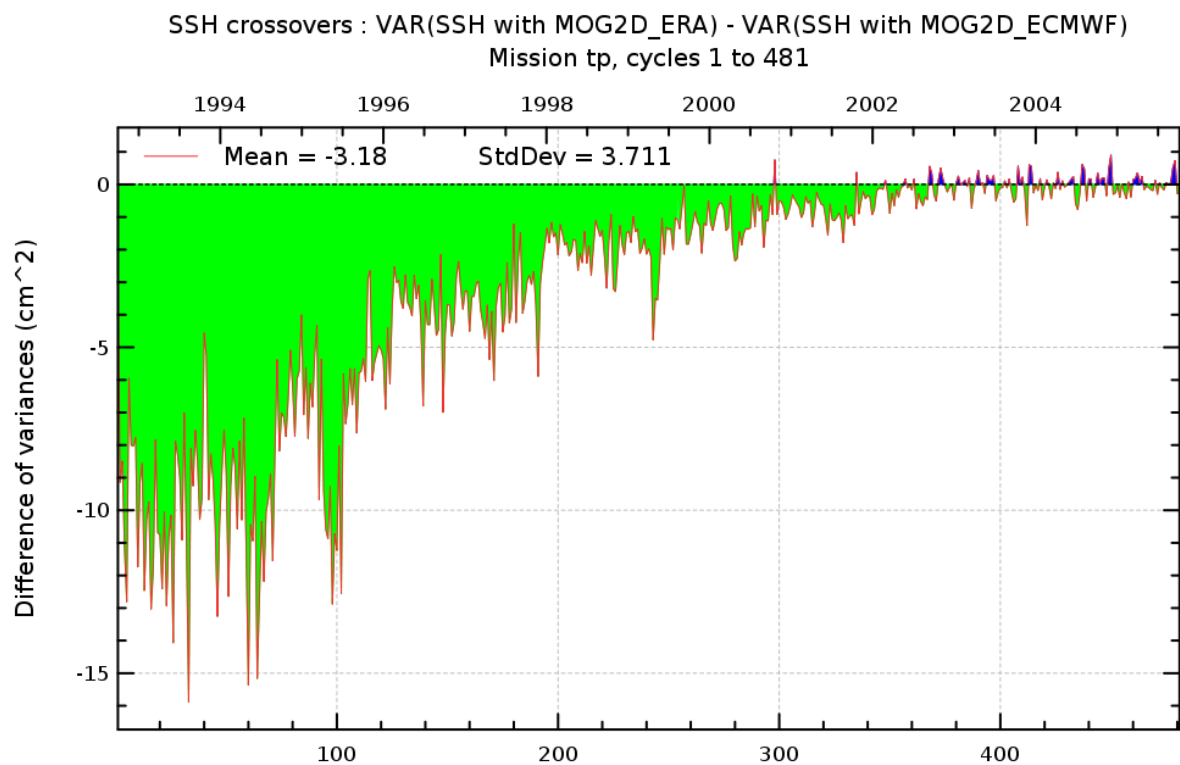
Diagnostic A102 (mission tp)

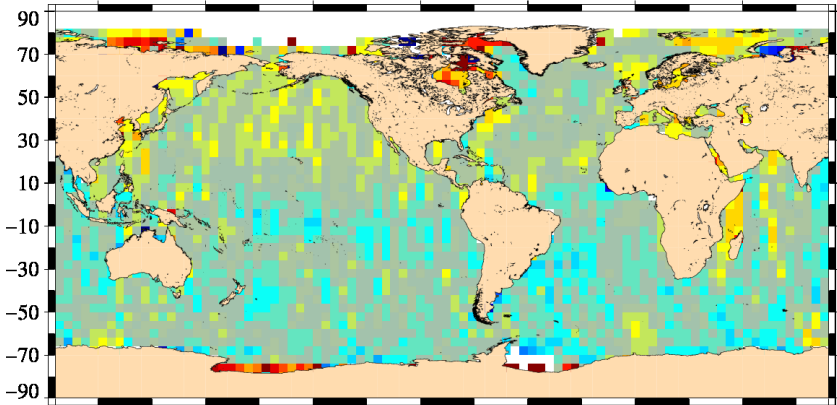
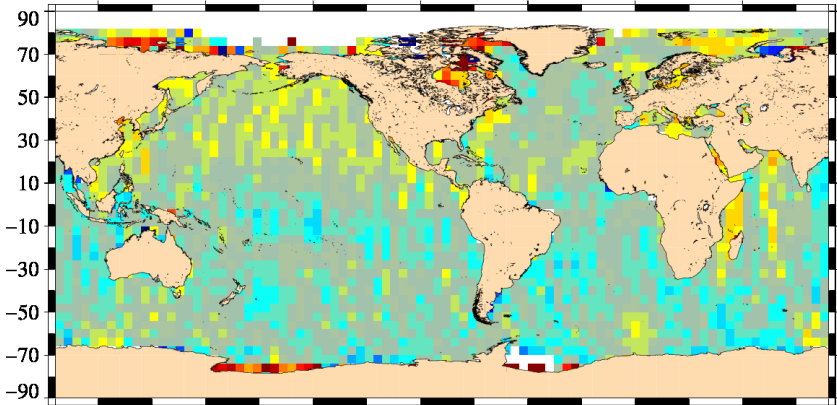
Name : Differences between temporal evolution of SSH crossovers

Input data : Sea Surface Height (SSH) crossovers

Description : The difference of temporal evolution between the global statistics (mean, standard deviation) of SSH differences are calculated using successively both altimetric components in the SSH calculation. SSH crossovers are the differences between ascending and descending passes for time differences between both passes lower than 10 days (in order to reduce the effect of the oceanic variability).

Diagnostic type : Global internal analyses



Diagnostic A103 (mission e1)	
Name : Map of SSH crossovers	
Input data : Sea Surface Height (SSH) crossovers	
<p>Description : The differences between maps of SSH crossovers differences (mean, variance) are calculated using successively both altimetric components in the SSH calculation. SSH crossovers are the differences between ascending and descending passes for time differences between both passes lower than 10 days (in order to reduce the effect of the oceanic variability).</p>	
<div><div>Mean of SSH with MOG2D_ERA Mission e1, cycles 15 to 53</div><div><div>-11.81165 -5.03686 1.73793 8.51272</div><div>Mean (cm)</div></div><div><div>Mean of SSH with MOG2D_ECMWF Mission e1, cycles 15 to 53</div><div><div>-12.06841 -5.15828 1.75184 8.66196</div><div>Mean (cm)</div></div></div></div>	

Diagnostic A103 (mission e2)

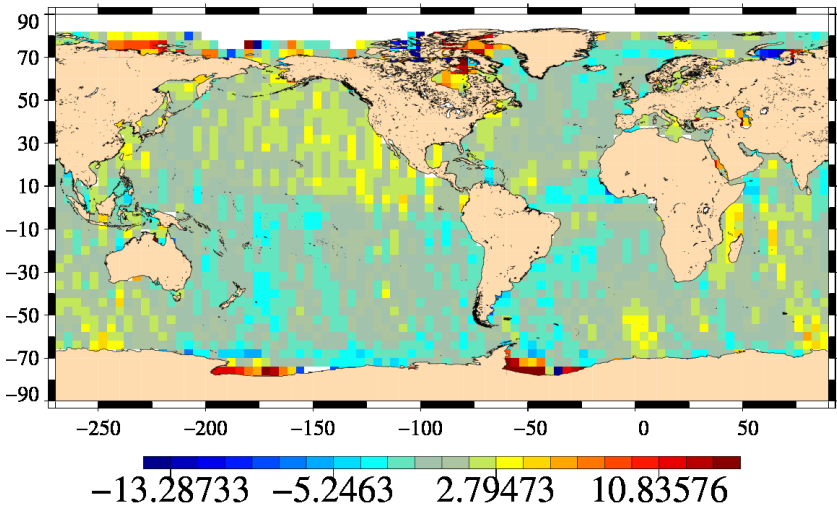
Name : Map of SSH crossovers

Input data : Sea Surface Height (SSH) crossovers

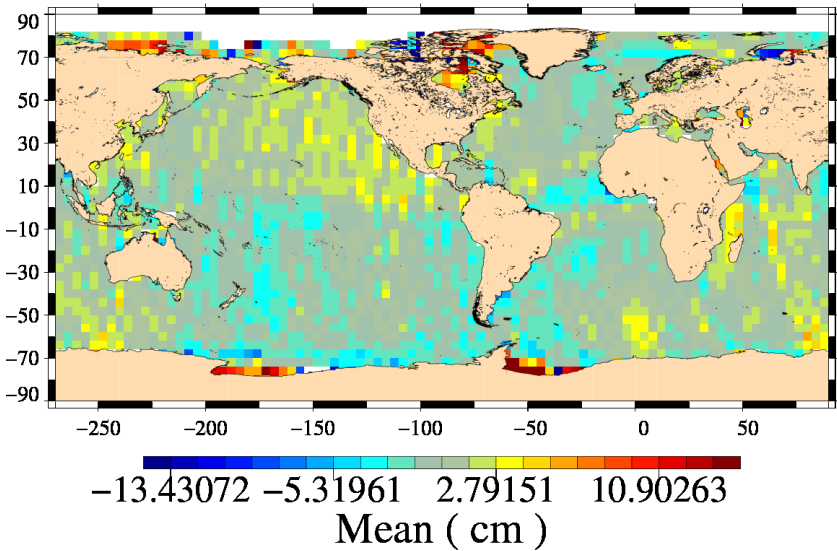
Description : The differences between maps of SSH crossovers differences (mean, variance) are calculated using successively both altimetric components in the SSH calculation. SSH crossovers are the differences between ascending and descending passes for time differences between both passes lower than 10 days (in order to reduce the effect of the oceanic variability).

Diagnostic type : Global internal analyses

Mean of SSH with MOG2D_ERA
Mission e2, cycles 1 to 85



Mean (cm)
Mean of SSH with MOG2D_ECMWF
Mission e2, cycles 1 to 85



Diagnostic A103 (mission tp)

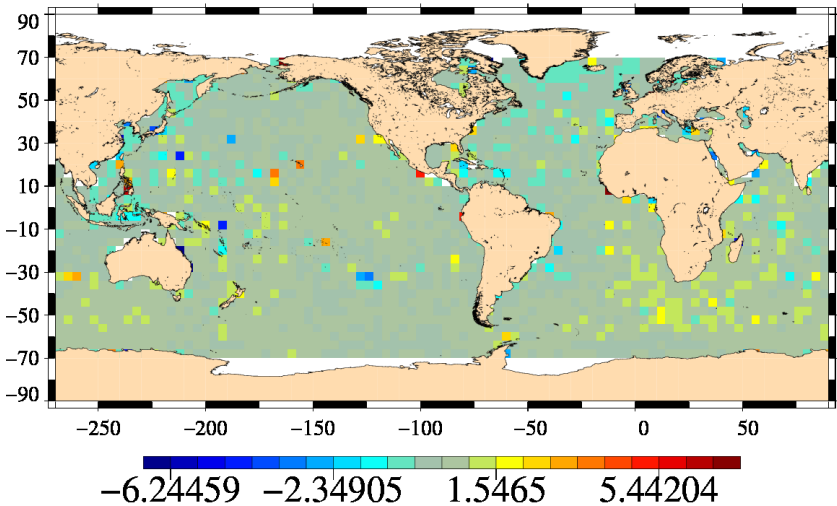
Name : Map of SSH crossovers

Input data : Sea Surface Height (SSH) crossovers

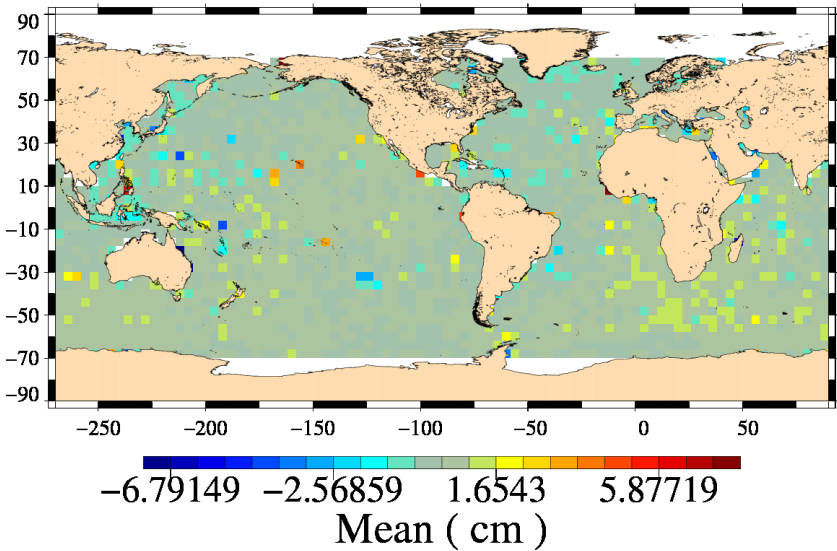
Description : The differences between maps of SSH crossovers differences (mean, variance) are calculated using successively both altimetric components in the SSH calculation. SSH crossovers are the differences between ascending and descending passes for time differences between both passes lower than 10 days (in order to reduce the effect of the oceanic variability).

Diagnostic type : Global internal analyses

Mean of SSH with MOG2D_ERA
Mission tp, cycles 1 to 481



Mean (cm)
Mean of SSH with MOG2D_ECMWF
Mission tp, cycles 1 to 481



Diagnostic A104 (mission e1)

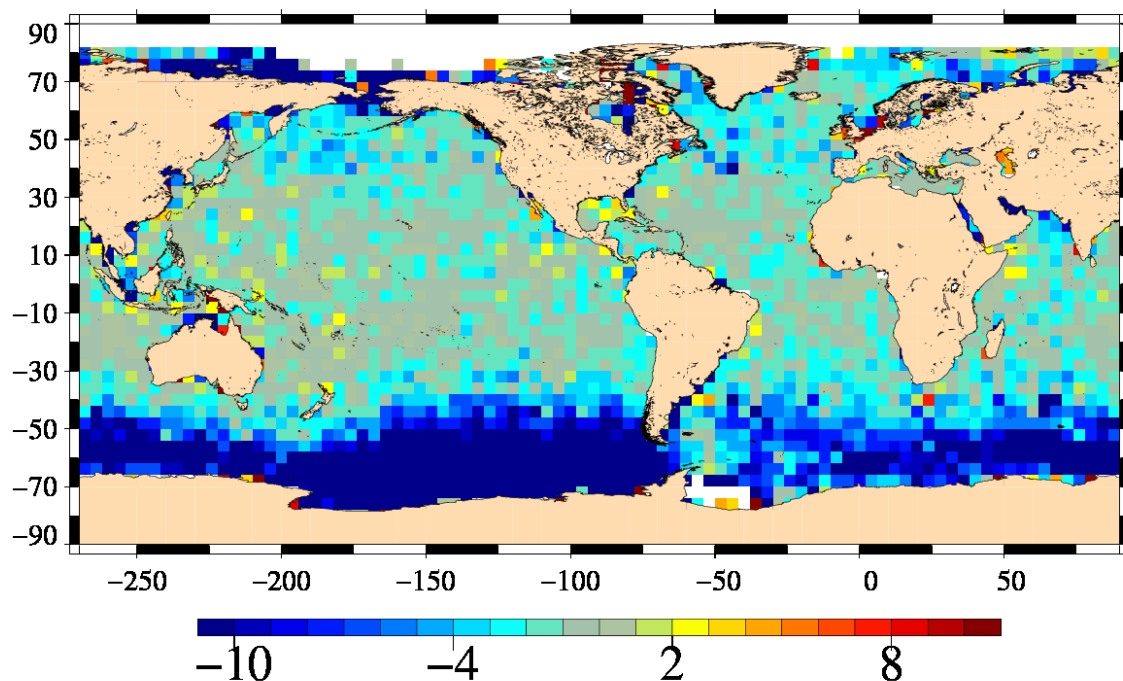
Name : Differences between maps of SSH crossovers

Input data : Sea Surface Height (SSH) crossovers

Description : The differences between maps of SSH crossovers (derived from diagnostic A103) are calculated from the SSH crossover differences (mean, standard deviation) using successively both altimetric components in the SSH calculation. SSH crossovers are the differences between ascending and descending passes for time differences between both passes lower than 10 days (in order to reduce the effect of the oceanic variability).

Diagnostic type : Global internal analyses

VAR(SSH with MOG2D_ERA) – VAR(SSH with MOG2D_ECMWF)
Mission e1, cycles 15 to 53



SSH crossovers : difference of variances (cm²)

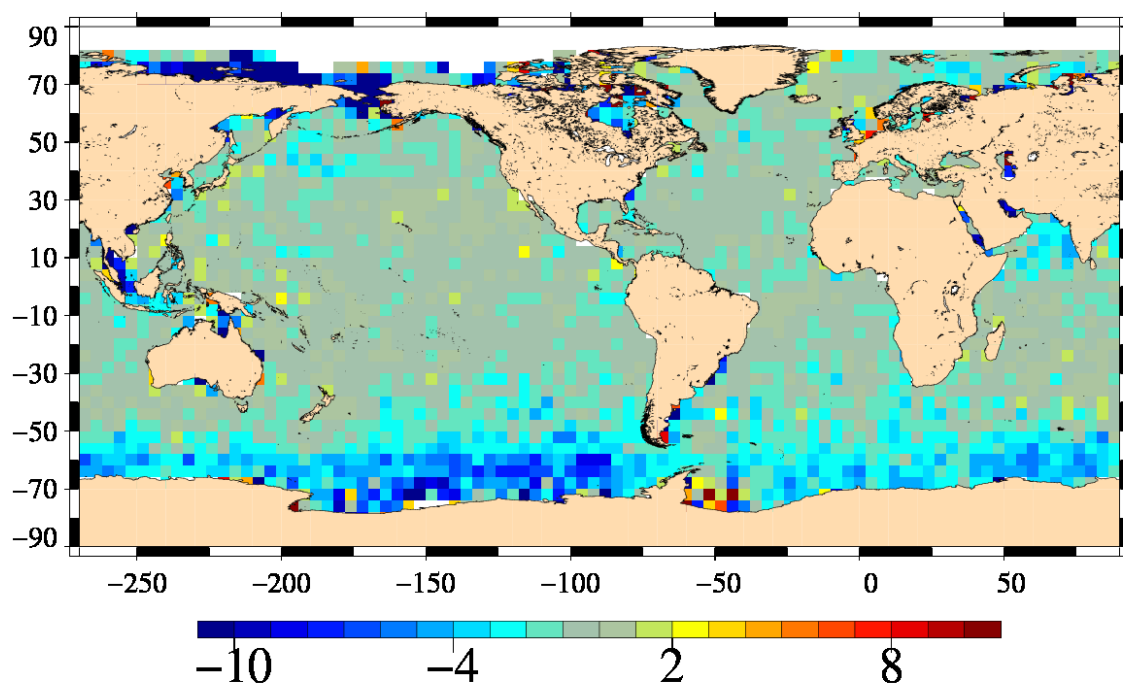
Diagnostic A104 (mission e2)

Name : Differences between maps of SSH crossovers

Input data : Sea Surface Height (SSH) crossovers

Description : The differences between maps of SSH crossovers (derived from diagnostic A103) are calculated from the SSH crossover differences (mean, standard deviation) using successively both altimetric components in the SSH calculation. SSH crossovers are the differences between ascending and descending passes for time differences between both passes lower than 10 days (in order to reduce the effect of the oceanic variability).

VAR(SSH with MOG2D_ERA) – VAR(SSH with MOG2D_ECMWF)
Mission e2, cycles 1 to 85



SSH crossovers : difference of variances (cm²)

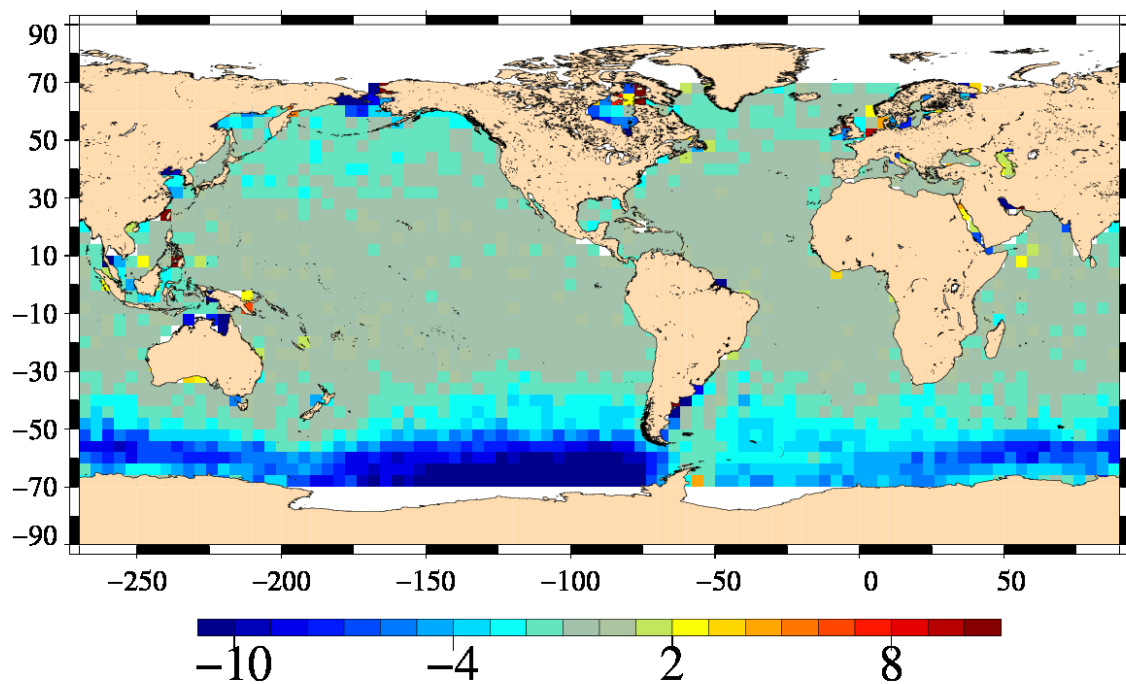
Diagnostic A104 (mission tp)

Name : Differences between maps of SSH crossovers

Input data : Sea Surface Height (SSH) crossovers

Description : The differences between maps of SSH crossovers (derived from diagnostic A103) are calculated from the SSH crossover differences (mean, standard deviation) using successively both altimetric components in the SSH calculation. SSH crossovers are the differences between ascending and descending passes for time differences between both passes lower than 10 days (in order to reduce the effect of the oceanic variability).

VAR(SSH with MOG2D_ERA) – VAR(SSH with MOG2D_ECMWF)
Mission tp, cycles 1 to 481



SSH crossovers : difference of variances (cm²)

Diagnostic type : Global internal analyses	Diagnostic A201_a (mission e1)																																								
	Name : Temporal evolution of Sea Level Anomaly (SLA)																																								
	Input data : Along track SLA																																								
	<p>Description : The temporal evolution of SLA statistics (mean, standard deviation) are calculated from a cyclic way (altimeter repetivity, daily, weekly, monthly) using successively both altimetric components in the SLA calculation. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements. They are calculated globally, but also separating ascending and descending passes (except for SLA Grids) , or separating North and South hemispheres.</p>																																								
	<div>Global MSL Mission e1, cycles 15 to 53</div> <p>The graph displays the temporal evolution of Sea Level Anomaly (SLA) statistics for Mission e1, cycles 15 to 53. The y-axis represents the Mean (cm) from 41 to 43. The x-axis represents Mission cycles from 15 to 53, with corresponding years 1993, 1994, 1995, and 1996 marked. Two data series are plotted: SLA with MOG2D_ERA (red line with square markers) and SLA with MOG2D_ECMWF (blue line with triangle markers). Both series show a clear upward trend, with linear regression lines fitted to the data. The slope for MOG2D_ERA is 6.27 mm/yr [L.S.R. = 0.628], and for MOG2D_ECMWF it is 6.34 mm/yr [L.S.R. = 0.623].</p> <table><tr><th>Mission Cycle</th><th>Year</th><th>SLA with MOG2D_ERA (cm)</th><th>SLA with MOG2D_ECMWF (cm)</th></tr><tr><td>15</td><td>1993</td><td>40.8</td><td>40.7</td></tr><tr><td>20</td><td>1993</td><td>41.5</td><td>41.4</td></tr><tr><td>25</td><td>1993</td><td>41.8</td><td>41.7</td></tr><tr><td>30</td><td>1994</td><td>42.5</td><td>42.4</td></tr><tr><td>35</td><td>1994</td><td>42.8</td><td>42.7</td></tr><tr><td>40</td><td>1995</td><td>43.2</td><td>43.1</td></tr><tr><td>45</td><td>1995</td><td>43.5</td><td>43.4</td></tr><tr><td>50</td><td>1996</td><td>43.8</td><td>43.7</td></tr><tr><td>53</td><td>1996</td><td>44.0</td><td>43.9</td></tr></table>		Mission Cycle	Year	SLA with MOG2D_ERA (cm)	SLA with MOG2D_ECMWF (cm)	15	1993	40.8	40.7	20	1993	41.5	41.4	25	1993	41.8	41.7	30	1994	42.5	42.4	35	1994	42.8	42.7	40	1995	43.2	43.1	45	1995	43.5	43.4	50	1996	43.8	43.7	53	1996	44.0
Mission Cycle	Year	SLA with MOG2D_ERA (cm)	SLA with MOG2D_ECMWF (cm)																																						
15	1993	40.8	40.7																																						
20	1993	41.5	41.4																																						
25	1993	41.8	41.7																																						
30	1994	42.5	42.4																																						
35	1994	42.8	42.7																																						
40	1995	43.2	43.1																																						
45	1995	43.5	43.4																																						
50	1996	43.8	43.7																																						
53	1996	44.0	43.9																																						

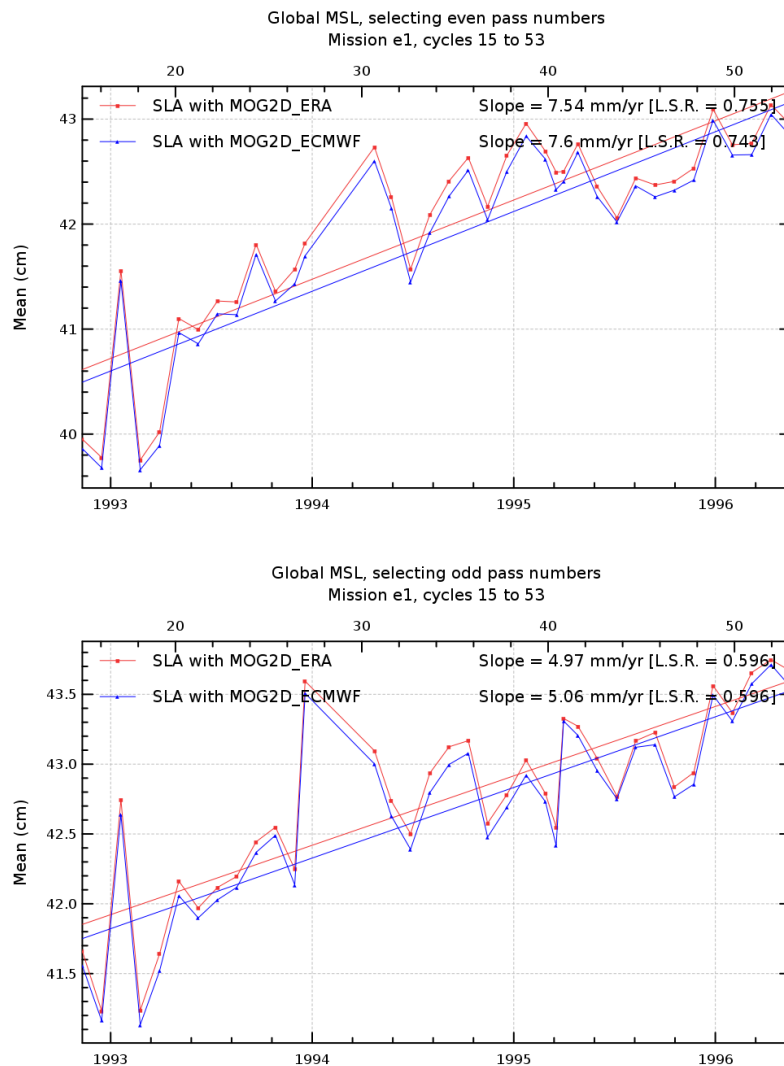
Diagnostic A201_b (mission e1)

Name : Temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

Description : The temporal evolution of SLA statistics (mean, standard deviation) are calculated from a cyclic way (altimeter repetivity, daily, weekly, monthly) using successively both altimetric components in the SLA calculation. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements. They are calculated globally, but also separating ascending and descending passes (except for SLA Grids) , or separating North and South hemispheres.

Diagnostic type : Global internal analyses



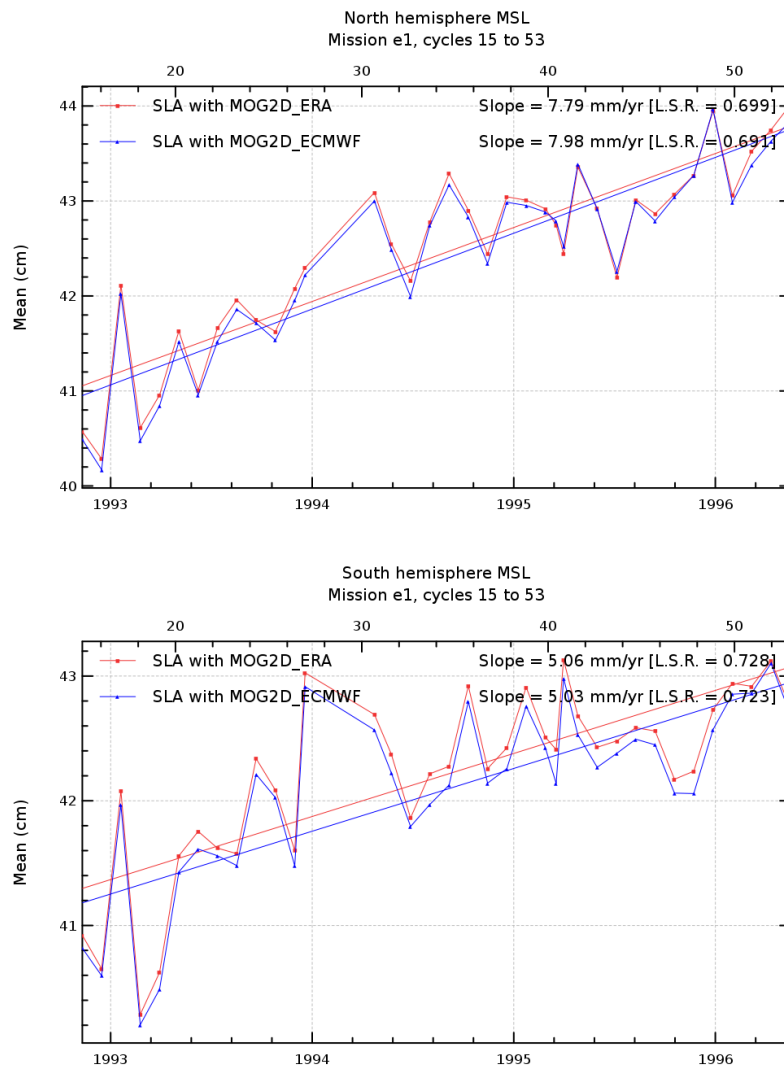
Diagnostic A201_c (mission e1)

Name : Temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

Description : The temporal evolution of SLA statistics (mean, standard deviation) are calculated from a cyclic way (altimeter repetivity, daily, weekly, monthly) using successively both altimetric components in the SLA calculation. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements. They are calculated globally, but also separating ascending and descending passes (except for SLA Grids) , or separating North and South hemispheres.

Diagnostic type : Global internal analyses



Diagnostic A201_d (mission e1)

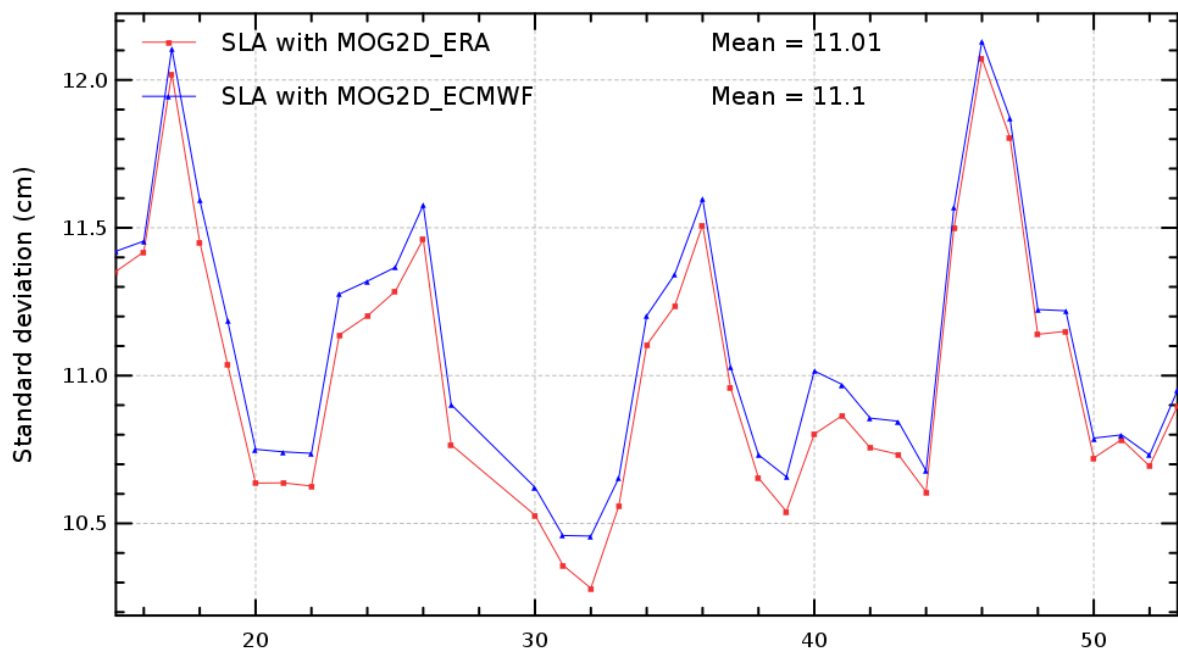
Name : Temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

Description : The temporal evolution of SLA statistics (mean, standard deviation) are calculated from a cyclic way (altimeter repetivity, daily, weekly, monthly) using successively both altimetric components in the SLA calculation. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements. They are calculated globally, but also separating ascending and descending passes (except for SLA Grids) , or separating North and South hemispheres.

Diagnostic type : Global internal analyses

Global MSL
Mission e1, cycles 15 to 53



Diagnostic A201_e (mission e1)

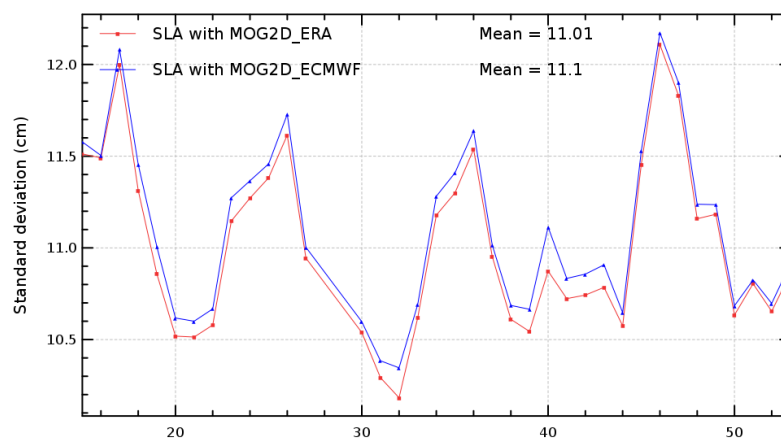
Name : Temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

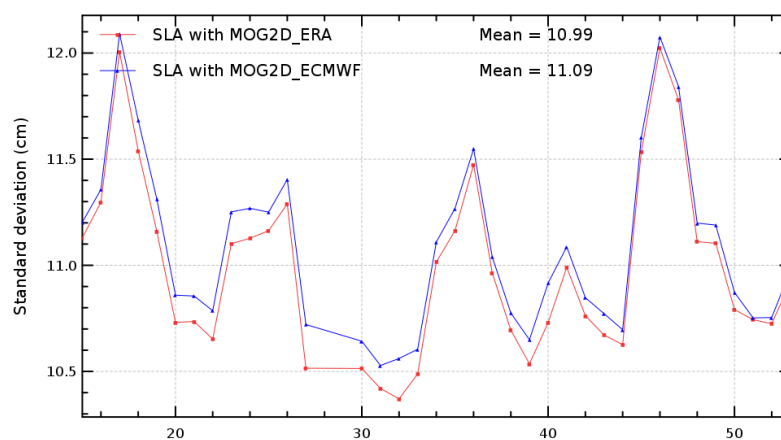
Description : The temporal evolution of SLA statistics (mean, standard deviation) are calculated from a cyclic way (altimeter repetivity, daily, weekly, monthly) using successively both altimetric components in the SLA calculation. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements. They are calculated globally, but also separating ascending and descending passes (except for SLA Grids) , or separating North and South hemispheres.

Diagnostic type : Global internal analyses

Global MSL, selecting even pass numbers
Mission e1, cycles 15 to 53



Global MSL, selecting odd pass numbers
Mission e1, cycles 15 to 53



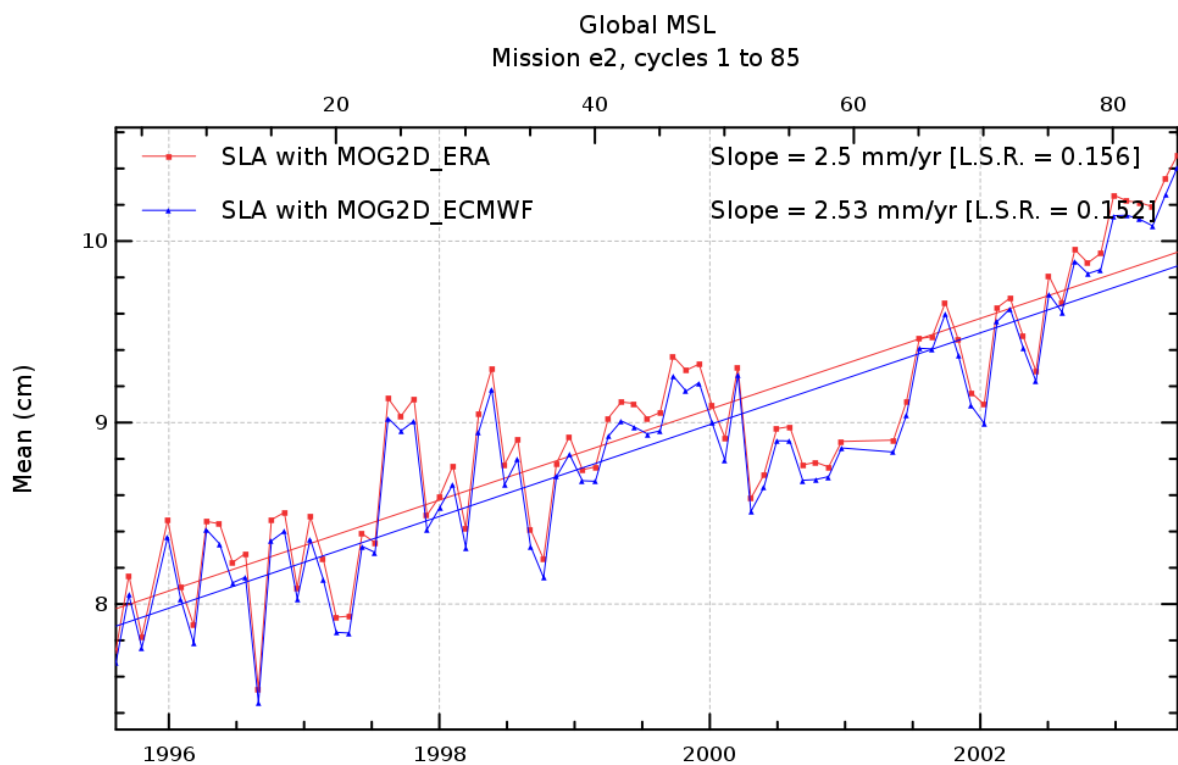
Diagnostic A201_a (mission e2)

Name : Temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

Description : The temporal evolution of SLA statistics (mean, standard deviation) are calculated from a cyclic way (altimeter repetivity, daily, weekly, monthly) using successively both altimetric components in the SLA calculation. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements. They are calculated globally, but also separating ascending and descending passes (except for SLA Grids) , or separating North and South hemispheres.

Diagnostic type : Global internal analyses



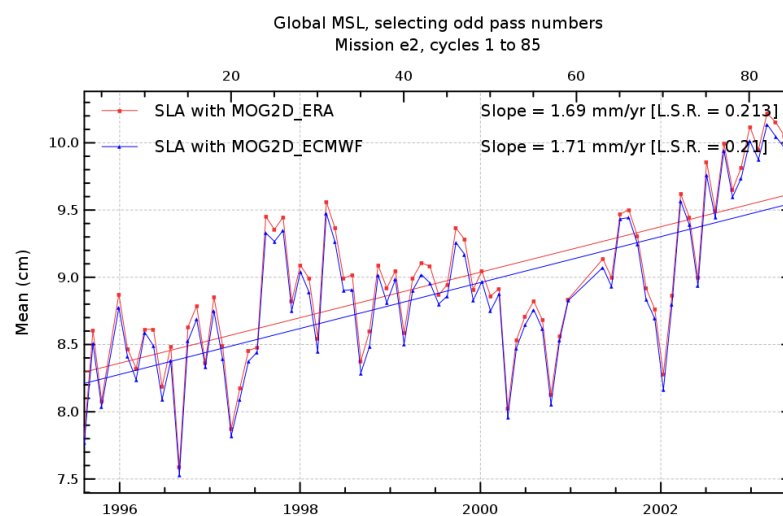
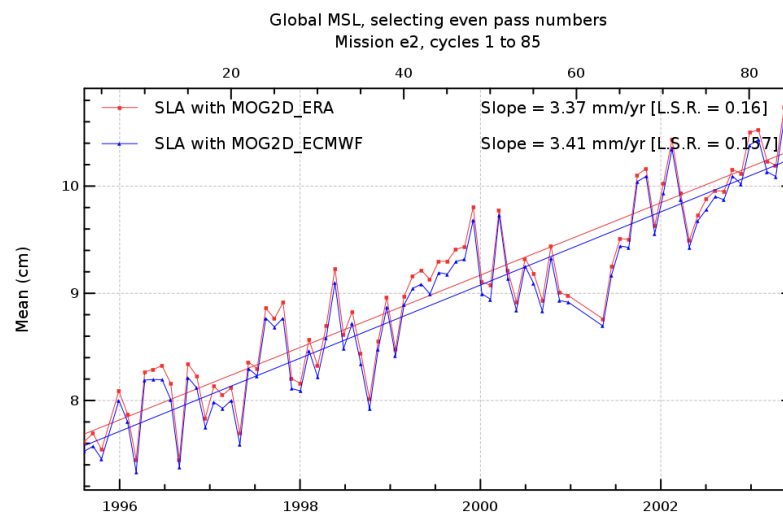
Diagnostic A201_b (mission e2)

Name : Temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

Description : The temporal evolution of SLA statistics (mean, standard deviation) are calculated from a cyclic way (altimeter repetivity, daily, weekly, monthly) using successively both altimetric components in the SLA calculation. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements. They are calculated globally, but also separating ascending and descending passes (except for SLA Grids) , or separating North and South hemispheres.

Diagnostic type : Global internal analyses



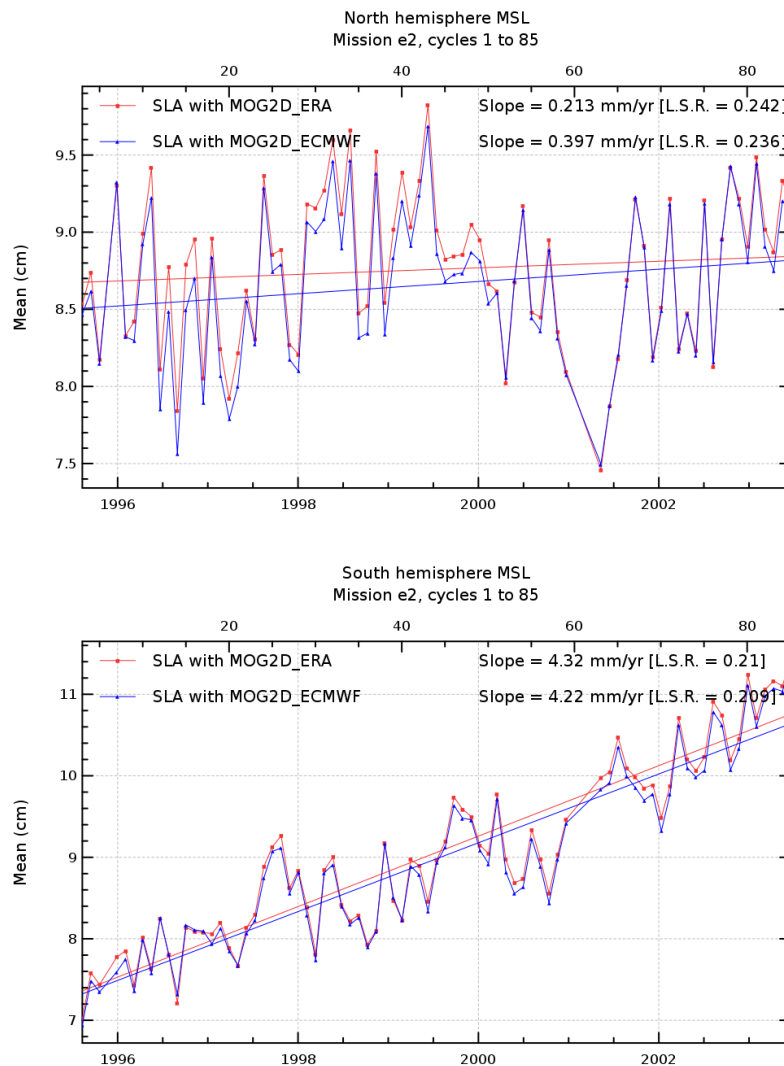
Diagnostic A201_c (mission e2)

Name : Temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

Description : The temporal evolution of SLA statistics (mean, standard deviation) are calculated from a cyclic way (altimeter repetivity, daily, weekly, monthly) using successively both altimetric components in the SLA calculation. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements. They are calculated globally, but also separating ascending and descending passes (except for SLA Grids) , or separating North and South hemispheres.

Diagnostic type : Global internal analyses



Diagnostic A201_d (mission e2)

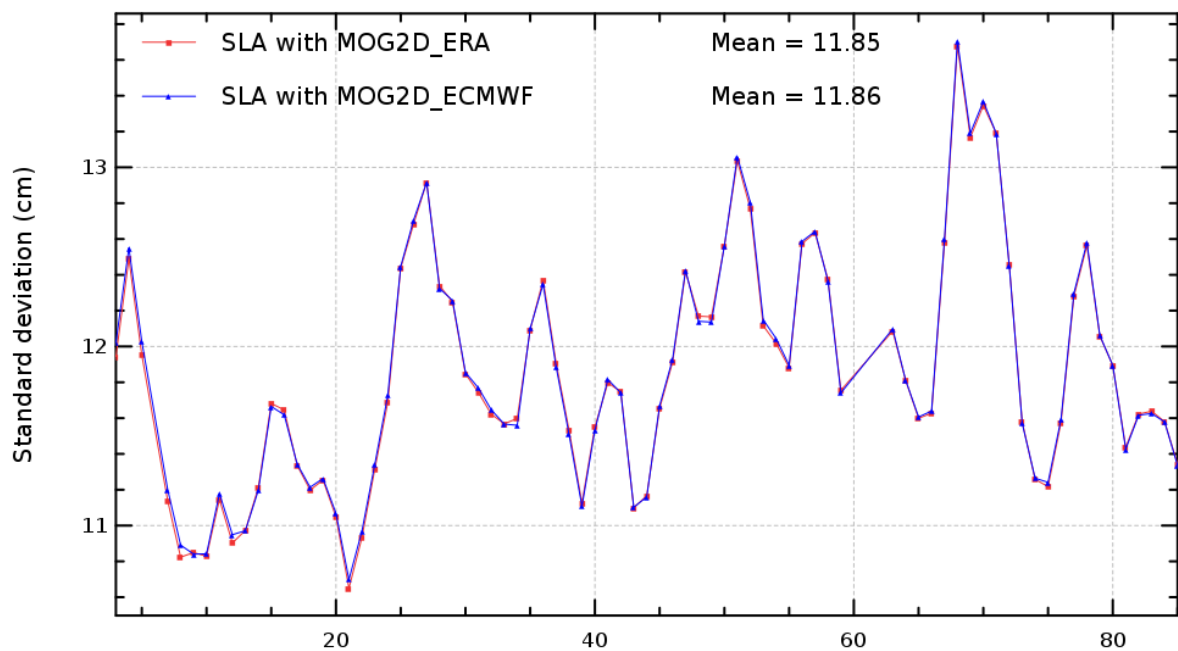
Name : Temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

Description : The temporal evolution of SLA statistics (mean, standard deviation) are calculated from a cyclic way (altimeter repetivity, daily, weekly, monthly) using successively both altimetric components in the SLA calculation. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements. They are calculated globally, but also separating ascending and descending passes (except for SLA Grids) , or separating North and South hemispheres.

Diagnostic type : Global internal analyses

Global MSL
Mission e2, cycles 1 to 85



Diagnostic A201_e (mission e2)

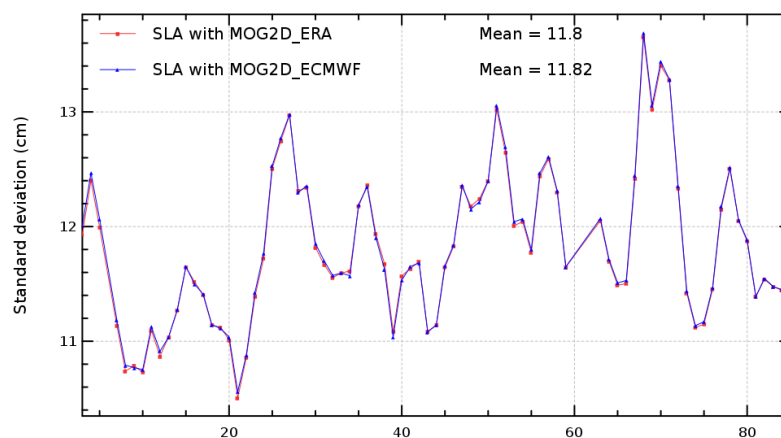
Name : Temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

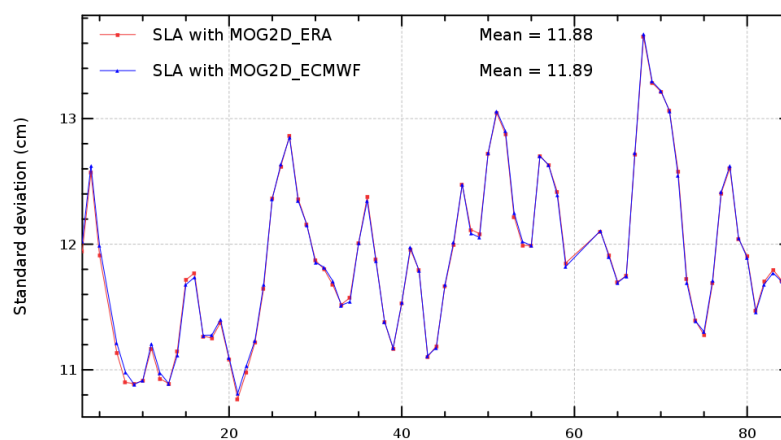
Description : The temporal evolution of SLA statistics (mean, standard deviation) are calculated from a cyclic way (altimeter repetivity, daily, weekly, monthly) using successively both altimetric components in the SLA calculation. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements. They are calculated globally, but also separating ascending and descending passes (except for SLA Grids) , or separating North and South hemispheres.

Diagnostic type : Global internal analyses

Global MSL, selecting even pass numbers
Mission e2, cycles 1 to 85



Global MSL, selecting odd pass numbers
Mission e2, cycles 1 to 85



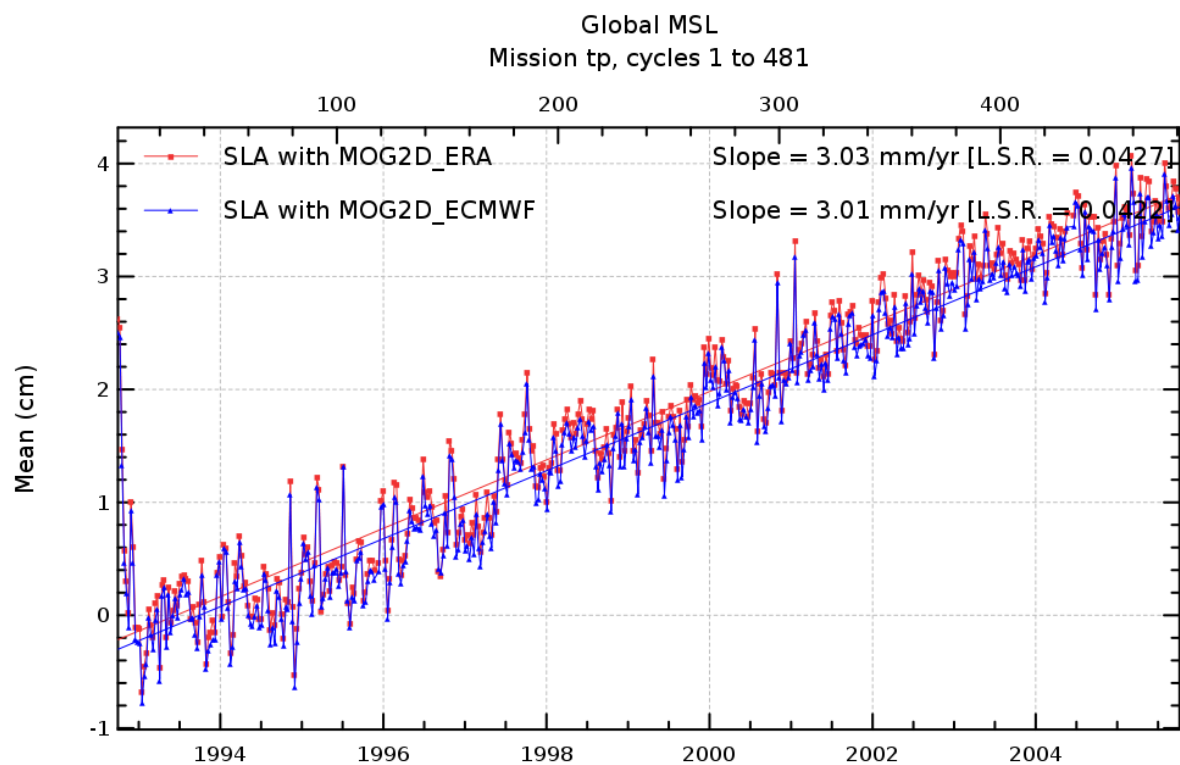
Diagnostic A201_a (mission tp)

Name : Temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

Description : The temporal evolution of SLA statistics (mean, standard deviation) are calculated from a cyclic way (altimeter repetivity, daily, weekly, monthly) using successively both altimetric components in the SLA calculation. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements. They are calculated globally, but also separating ascending and descending passes (except for SLA Grids) , or separating North and South hemispheres.

Diagnostic type : Global internal analyses



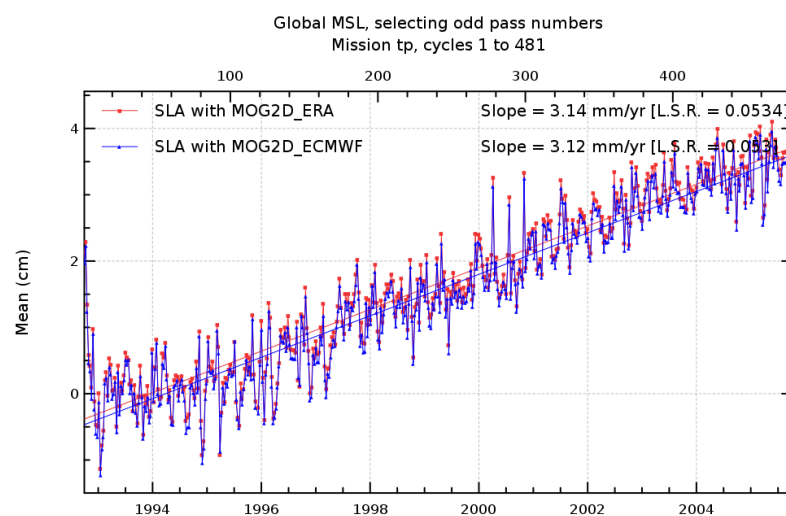
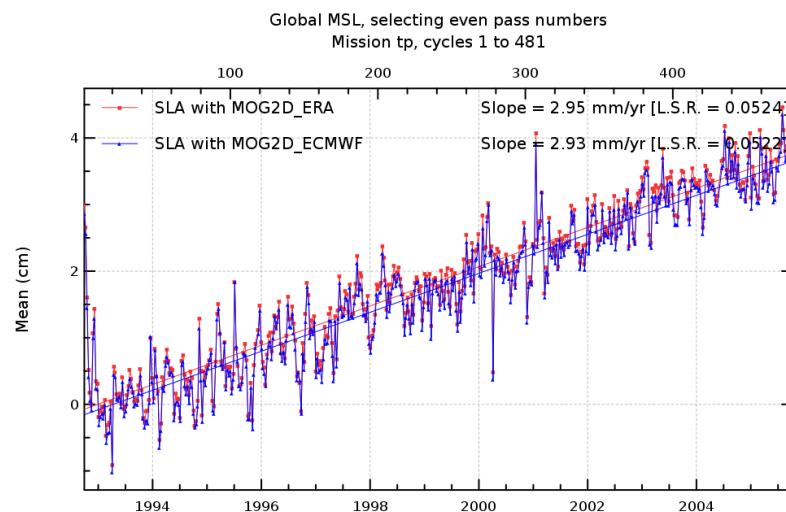
Diagnostic A201_b (mission tp)

Name : Temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

Description : The temporal evolution of SLA statistics (mean, standard deviation) are calculated from a cyclic way (altimeter repetitivity, daily, weekly, monthly) using successively both altimetric components in the SLA calculation. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements. They are calculated globally, but also separating ascending and descending passes (except for SLA Grids) , or separating North and South hemispheres.

Diagnostic type : Global internal analyses



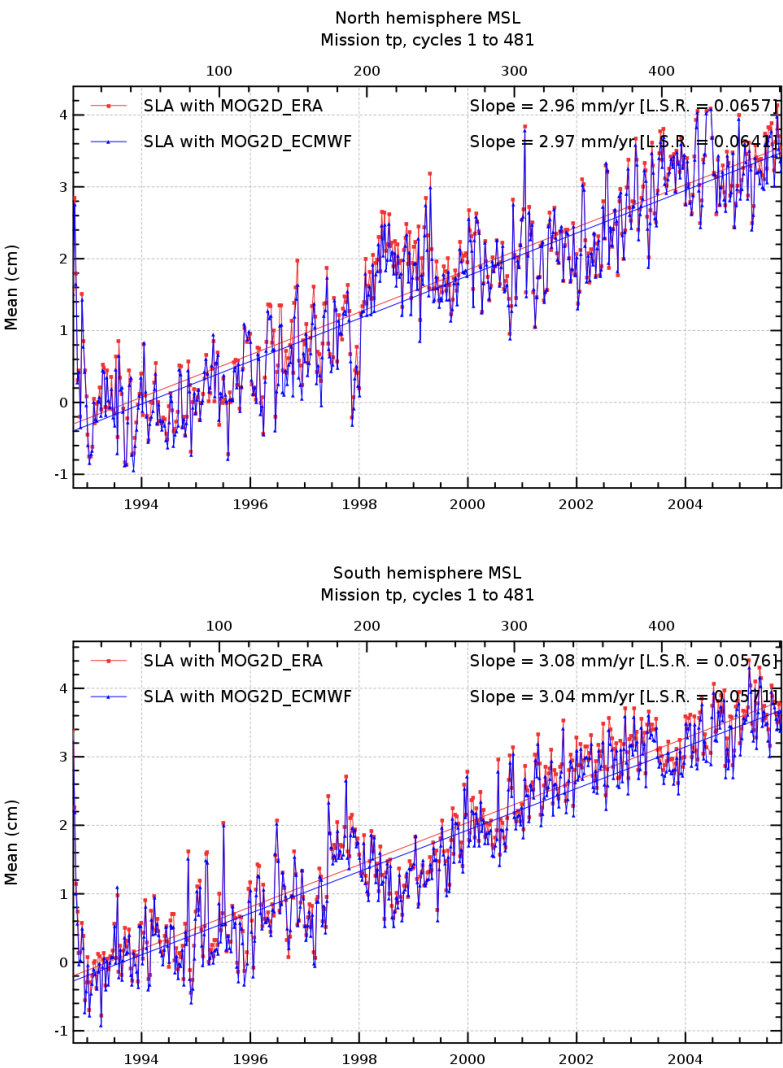
Diagnostic A201_c (mission tp)

Name : Temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

Description : The temporal evolution of SLA statistics (mean, standard deviation) are calculated from a cyclic way (altimeter repetivity, daily, weekly, monthly) using successively both altimetric components in the SLA calculation. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements. They are calculated globally, but also separating ascending and descending passes (except for SLA Grids) , or separating North and South hemispheres.

Diagnostic type : Global internal analyses



Diagnostic A201_d (mission tp)

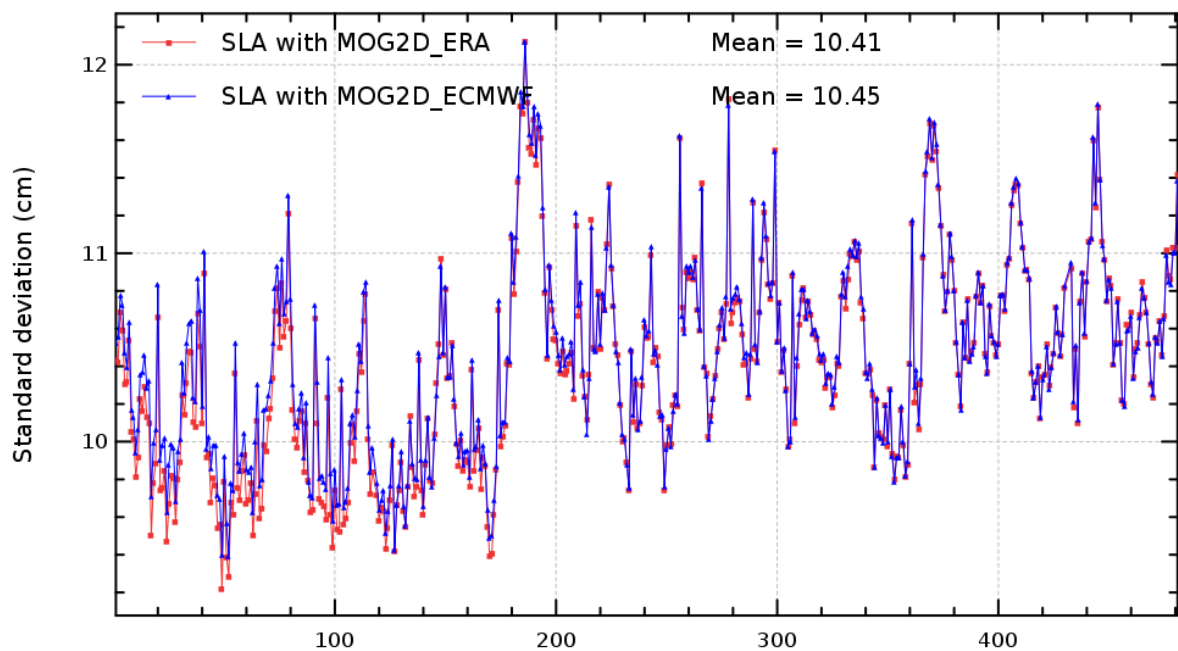
Name : Temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

Description : The temporal evolution of SLA statistics (mean, standard deviation) are calculated from a cyclic way (altimeter repetivity, daily, weekly, monthly) using successively both altimetric components in the SLA calculation. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements. They are calculated globally, but also separating ascending and descending passes (except for SLA Grids) , or separating North and South hemispheres.

Diagnostic type : Global internal analyses

Global MSL
Mission tp, cycles 1 to 481



Diagnostic A201_e (mission tp)

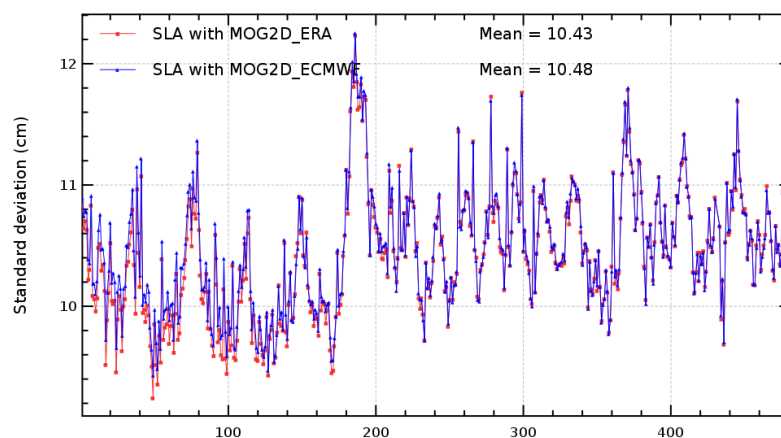
Name : Temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

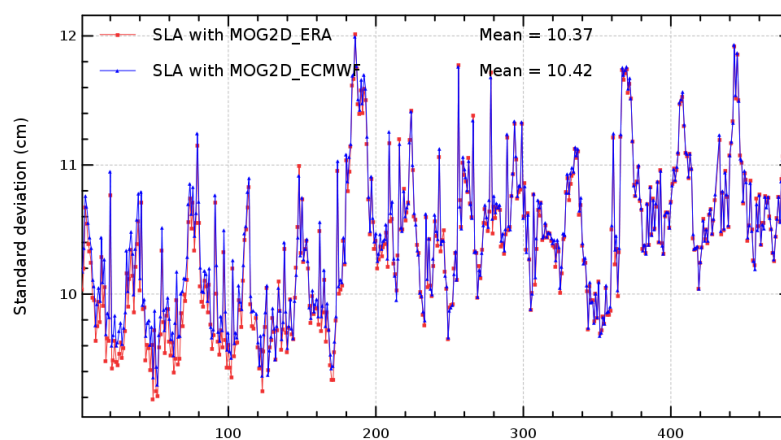
Description : The temporal evolution of SLA statistics (mean, standard deviation) are calculated from a cyclic way (altimeter repetivity, daily, weekly, monthly) using successively both altimetric components in the SLA calculation. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements. They are calculated globally, but also separating ascending and descending passes (except for SLA Grids) , or separating North and South hemispheres.

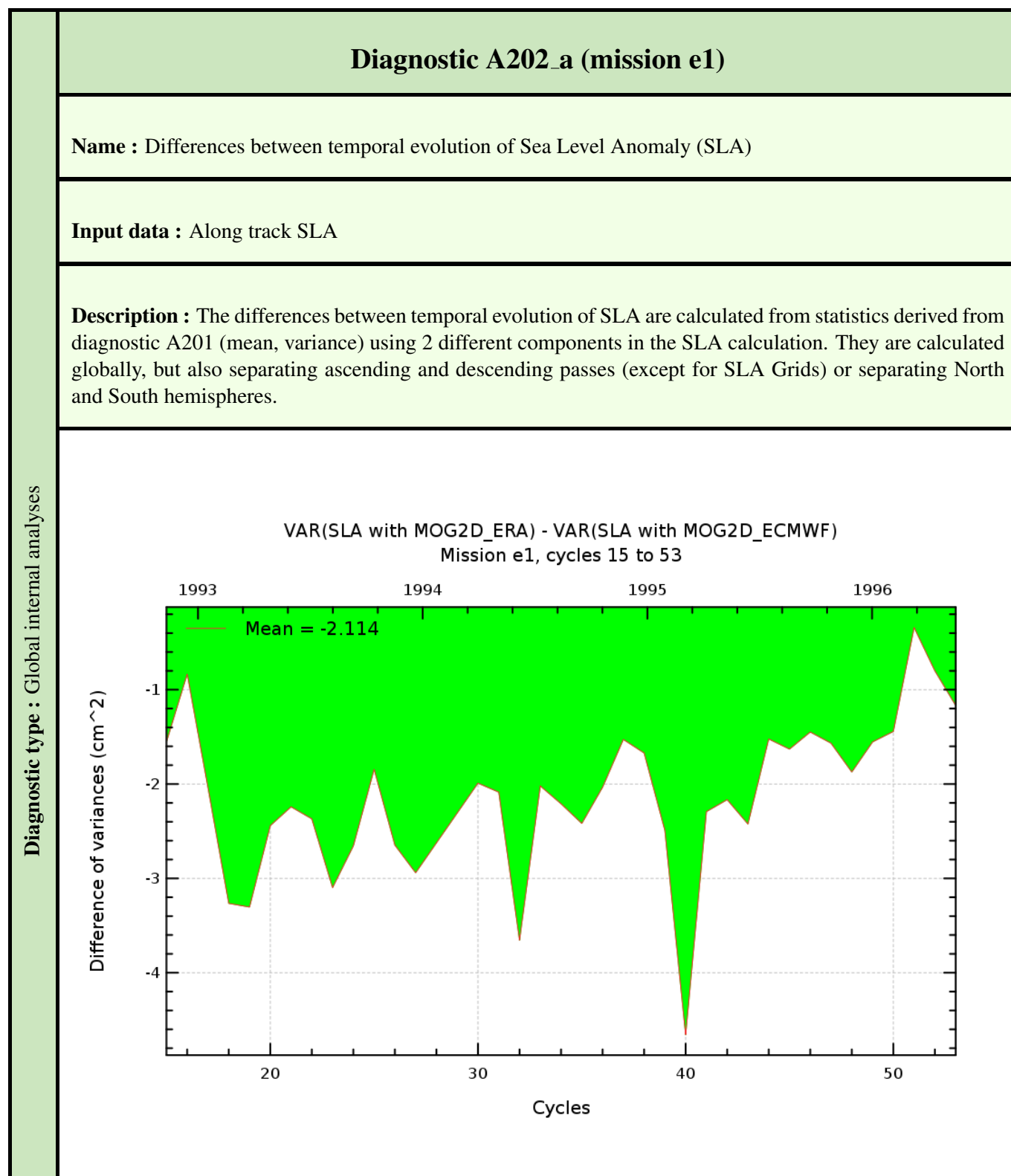
Diagnostic type : Global internal analyses

Global MSL, selecting even pass numbers
Mission tp, cycles 1 to 481



Global MSL, selecting odd pass numbers
Mission tp, cycles 1 to 481





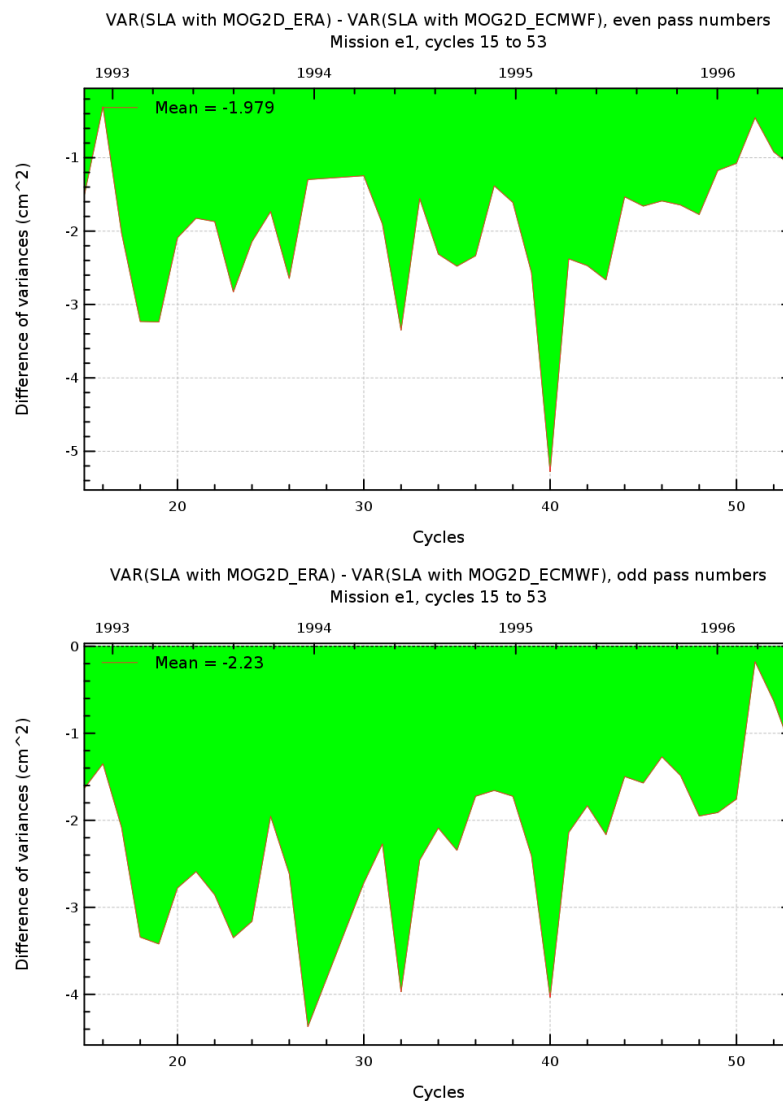
Diagnostic A202_b (mission e1)

Name : Differences between temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

Description : The differences between temporal evolution of SLA are calculated from statistics derived from diagnostic A201 (mean, variance) using 2 different components in the SLA calculation. They are calculated globally, but also separating ascending and descending passes (except for SLA Grids) or separating North and South hemispheres.

Diagnostic type : Global internal analyses



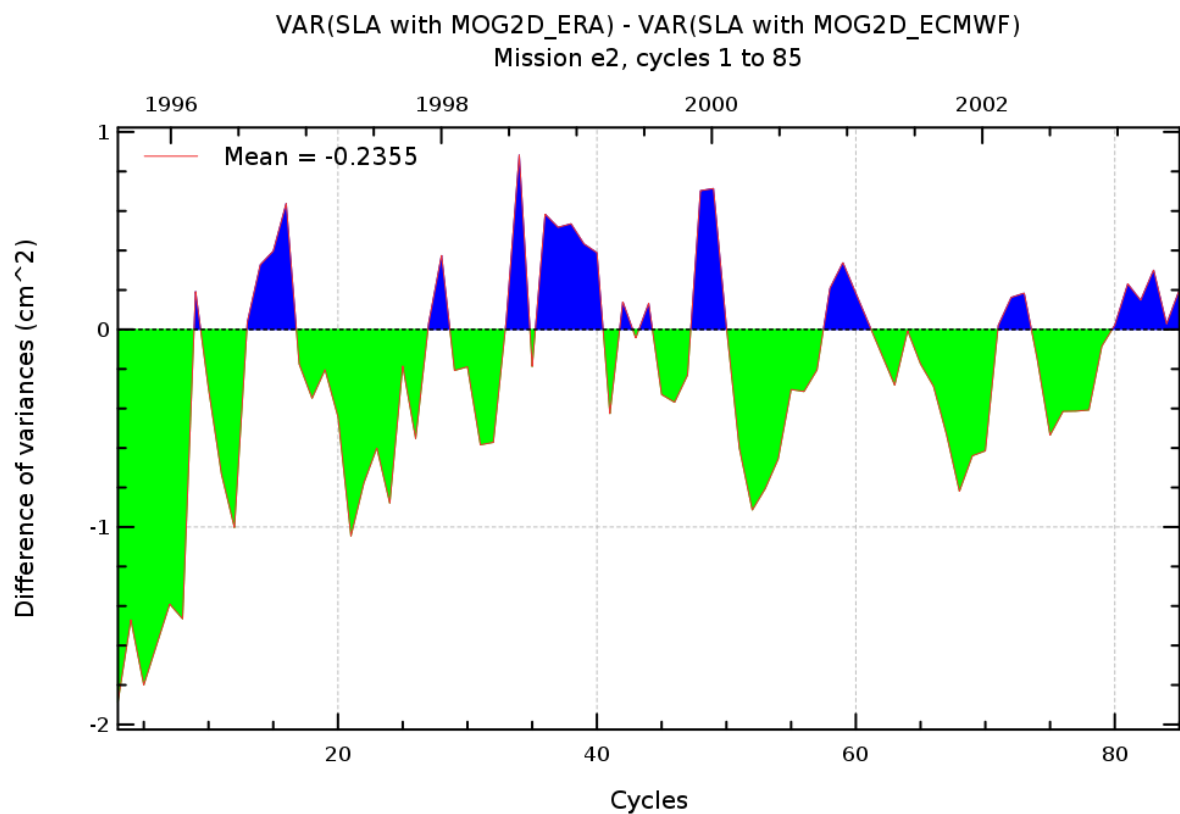
Diagnostic A202_a (mission e2)

Name : Differences between temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

Description : The differences between temporal evolution of SLA are calculated from statistics derived from diagnostic A201 (mean, variance) using 2 different components in the SLA calculation. They are calculated globally, but also separating ascending and descending passes (except for SLA Grids) or separating North and South hemispheres.

Diagnostic type : Global internal analyses



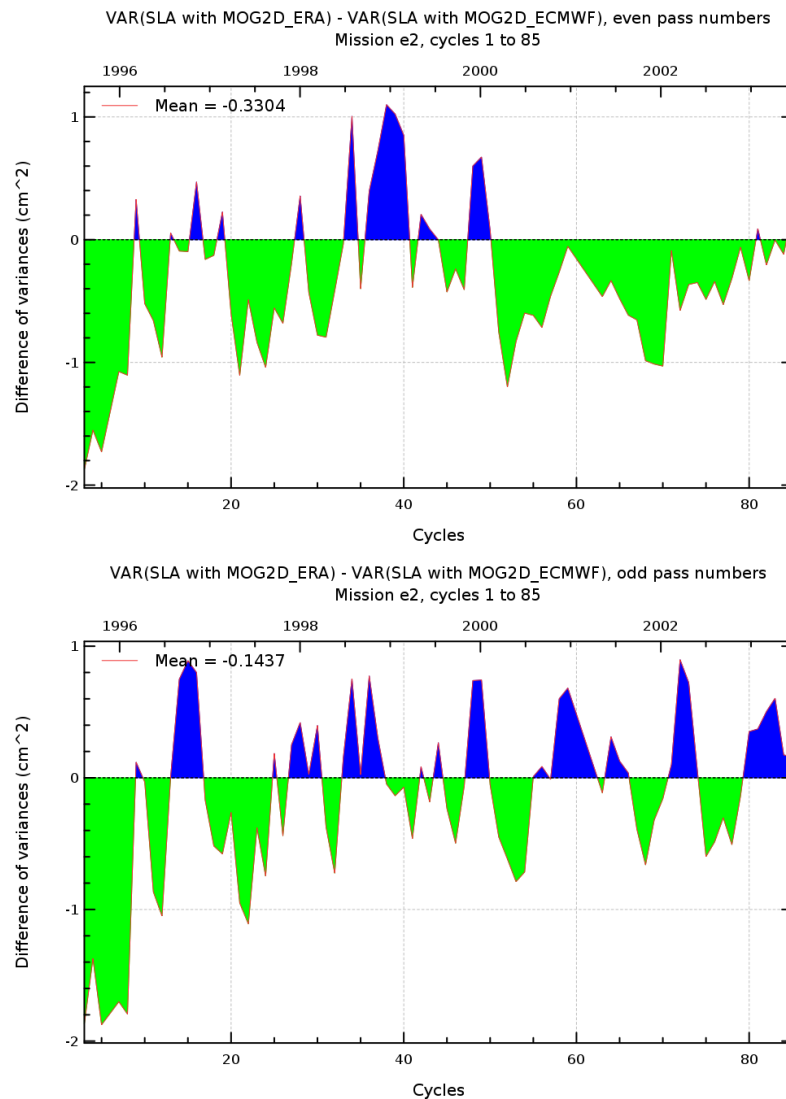
Diagnostic A202_b (mission e2)

Name : Differences between temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

Description : The differences between temporal evolution of SLA are calculated from statistics derived from diagnostic A201 (mean, variance) using 2 different components in the SLA calculation. They are calculated globally, but also separating ascending and descending passes (except for SLA Grids) or separating North and South hemispheres.

Diagnostic type : Global internal analyses



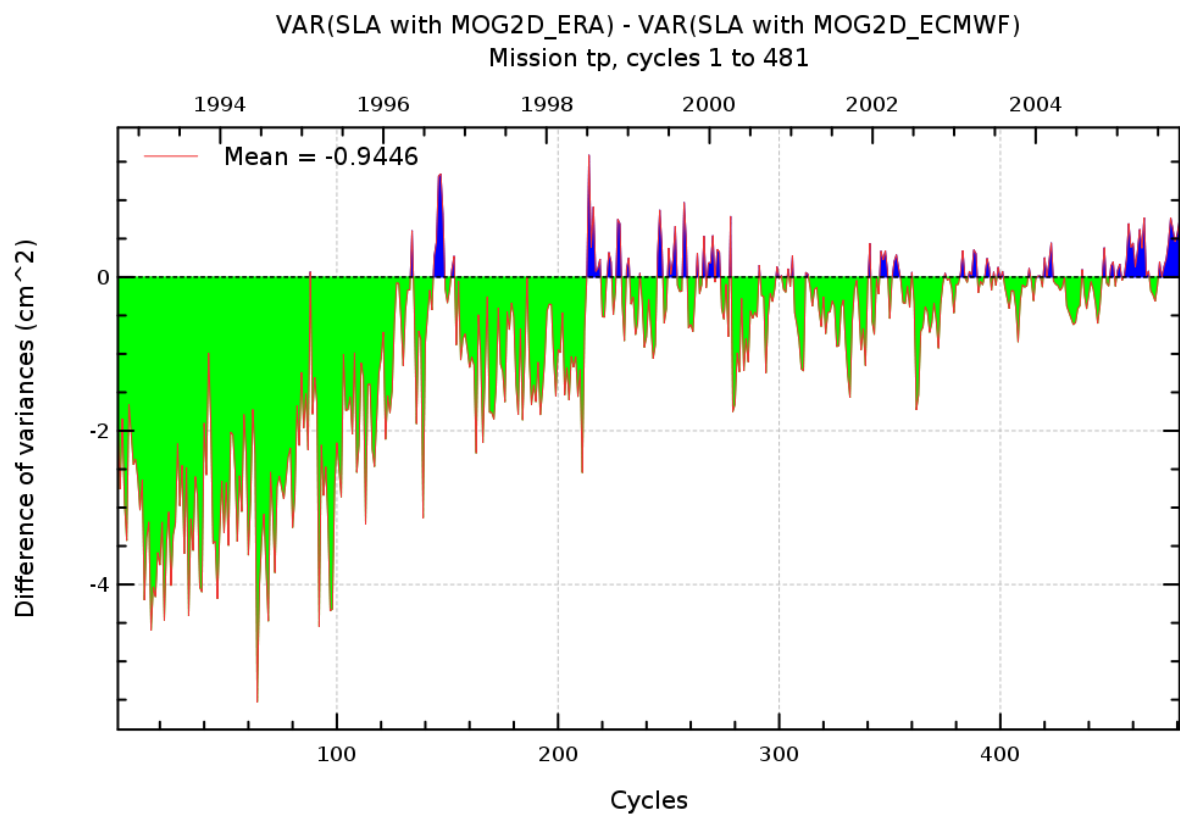
Diagnostic A202_a (mission tp)

Name : Differences between temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

Description : The differences between temporal evolution of SLA are calculated from statistics derived from diagnostic A201 (mean, variance) using 2 different components in the SLA calculation. They are calculated globally, but also separating ascending and descending passes (except for SLA Grids) or separating North and South hemispheres.

Diagnostic type : Global internal analyses



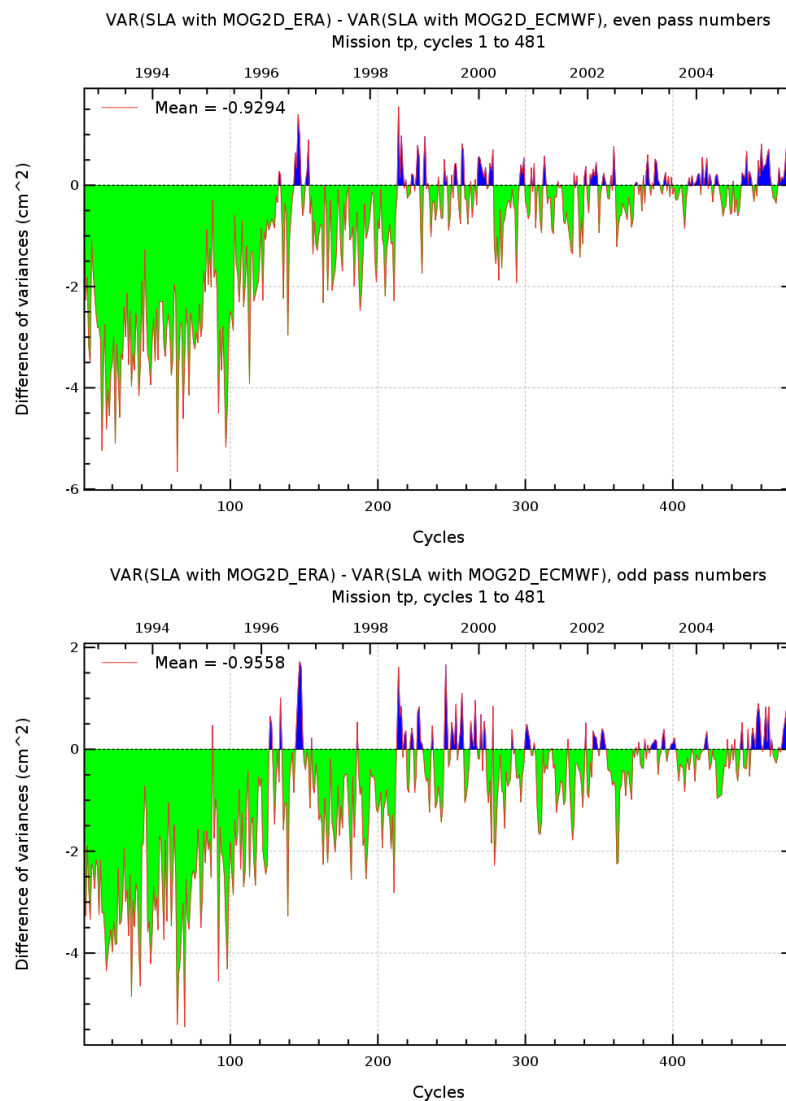
Diagnostic A202_b (mission tp)

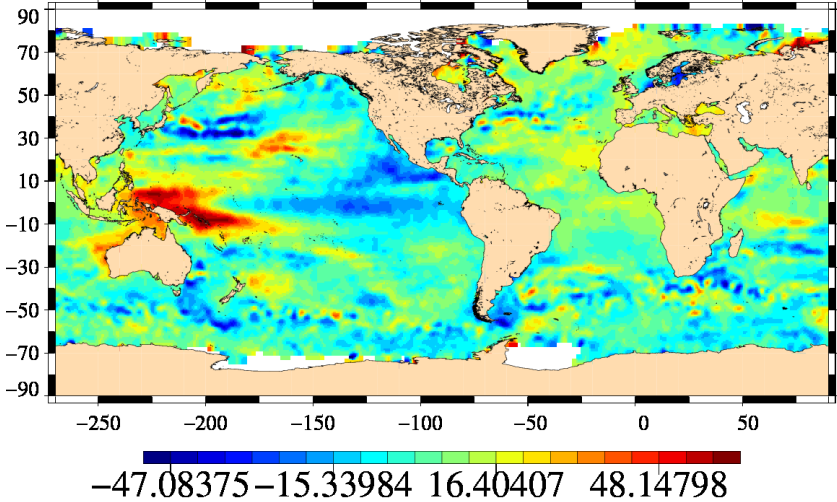
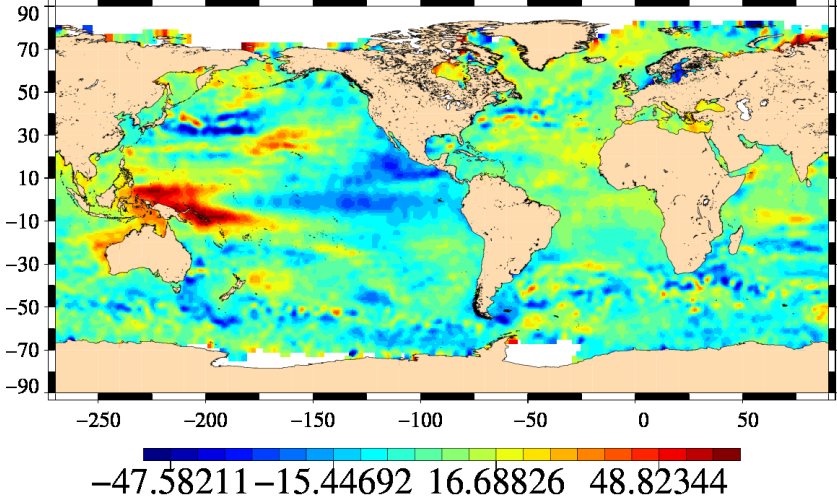
Name : Differences between temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

Description : The differences between temporal evolution of SLA are calculated from statistics derived from diagnostic A201 (mean, variance) using 2 different components in the SLA calculation. They are calculated globally, but also separating ascending and descending passes (except for SLA Grids) or separating North and South hemispheres.

Diagnostic type : Global internal analyses



Diagnostic type : Global internal analyses	Diagnostic A203_a (mission e1)	
	Name : Map of Sea Level Anomaly (SLA) over all the period	
	Input data : Along track SLA	
	Description : The map of global statistics (mean, standard deviation) of SLA are calculated using successively both altimetric components in the SLA calculation over a large period. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements.	
	<div>SLA with MOG2D_ERA trends Mission e1, cycles 15 to 53</div>  <div>Trends (mm/yr) -47.08375 -15.33984 16.40407 48.14798</div> <div>SLA with MOG2D_ECMWF trends Mission e1, cycles 15 to 53</div>  <div>Trends (mm/yr) -47.58211 -15.44692 16.68826 48.82344</div>	

Diagnostic A203_b (mission e1)

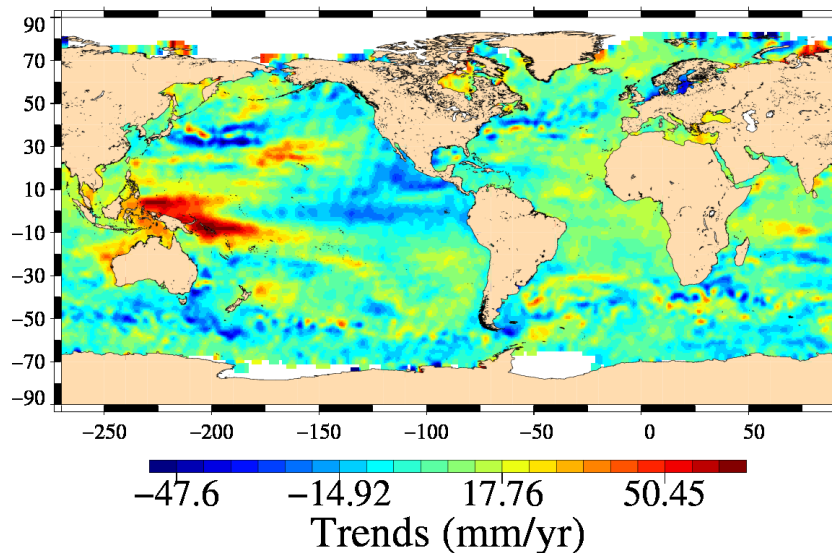
Name : Map of Sea Level Anomaly (SLA) over all the period

Input data : Along track SLA

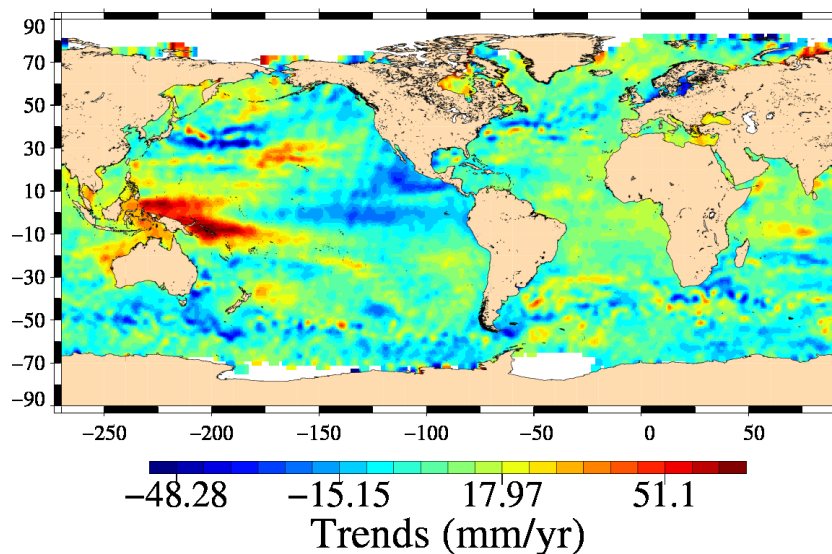
Description : The map of global statistics (mean, standard deviation) of SLA are calculated using successively both altimetric components in the SLA calculation over a large period. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements.

Diagnostic type : Global internal analyses

SLA with MOG2D_ERA trends : even pass numbers
Mission e1, cycles 15 to 53



SLA with MOG2D_ECMWF trends : even pass numbers
Mission e1, cycles 15 to 53



Diagnostic A203_c (mission e1)

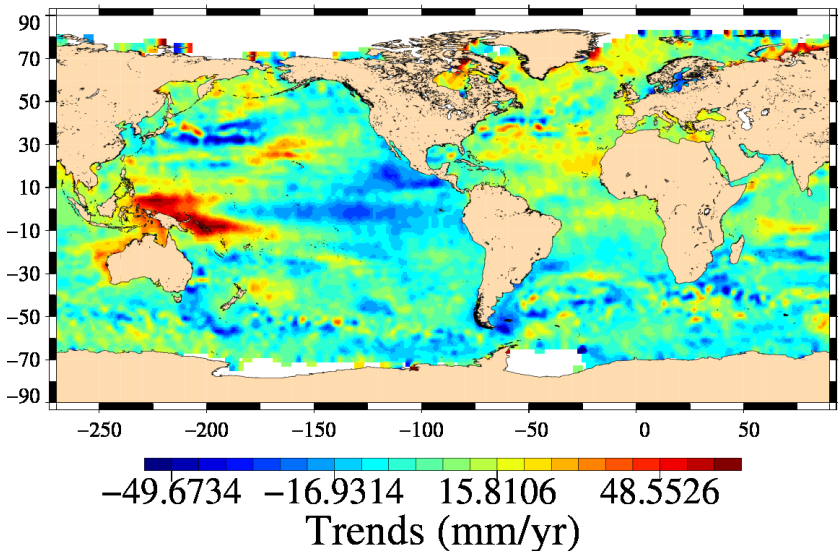
Name : Map of Sea Level Anomaly (SLA) over all the period

Input data : Along track SLA

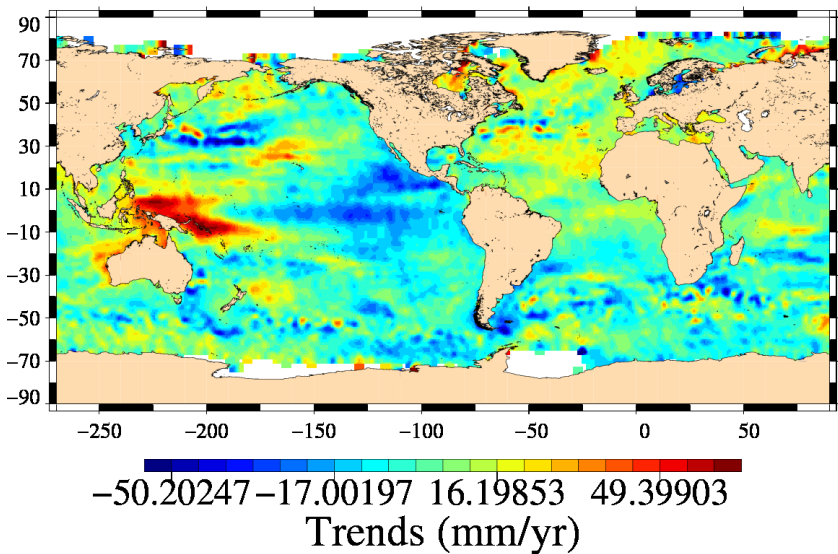
Description : The map of global statistics (mean, standard deviation) of SLA are calculated using successively both altimetric components in the SLA calculation over a large period. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements.

Diagnostic type : Global internal analyses

SLA with MOG2D_ERA trends : odd pass numbers
Mission e1, cycles 15 to 53



SLA with MOG2D_ECMWF trends : odd pass numbers
Mission e1, cycles 15 to 53



Diagnostic A203_a (mission e2)

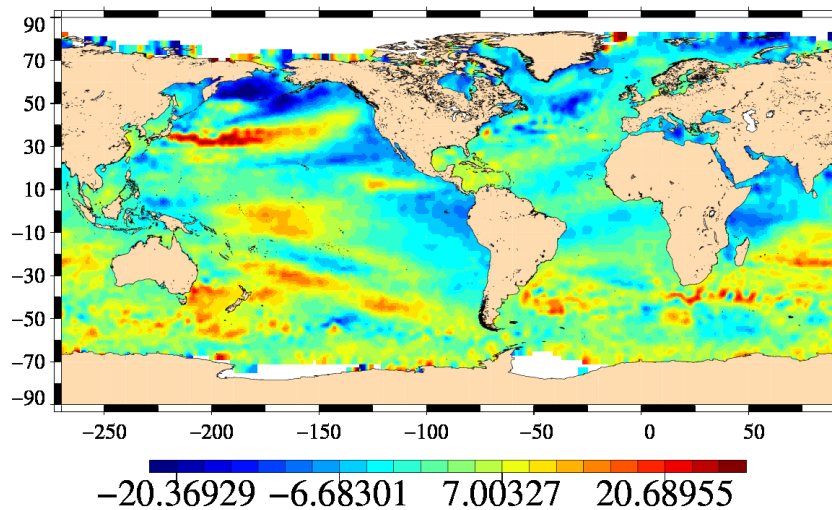
Name : Map of Sea Level Anomaly (SLA) over all the period

Input data : Along track SLA

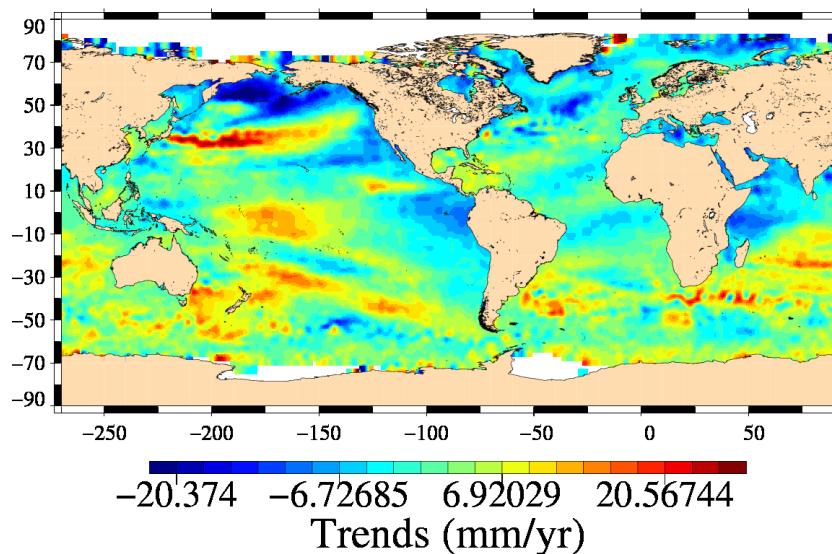
Description : The map of global statistics (mean, standard deviation) of SLA are calculated using successively both altimetric components in the SLA calculation over a large period. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements.

Diagnostic type : Global internal analyses

SLA with MOG2D_ERA trends
Mission e2, cycles 1 to 85



SLA with MOG2D_ECMWF trends
Mission e2, cycles 1 to 85



Diagnostic A203_b (mission e2)

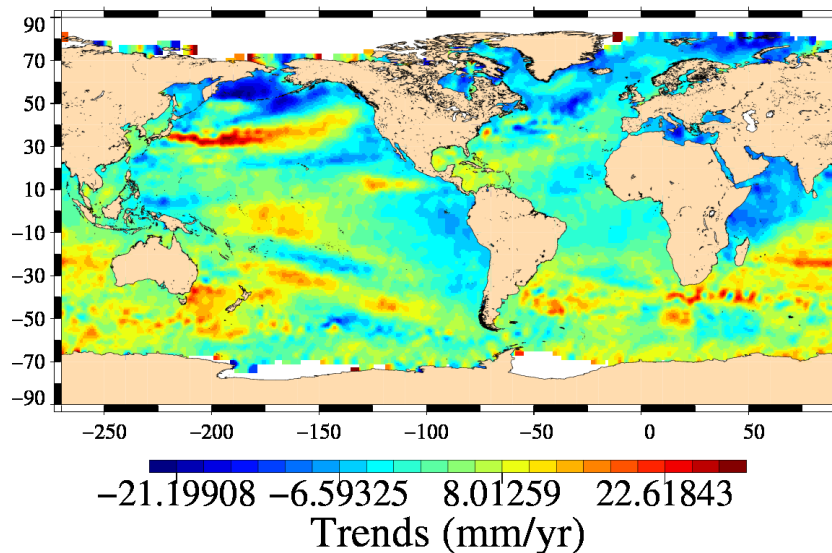
Name : Map of Sea Level Anomaly (SLA) over all the period

Input data : Along track SLA

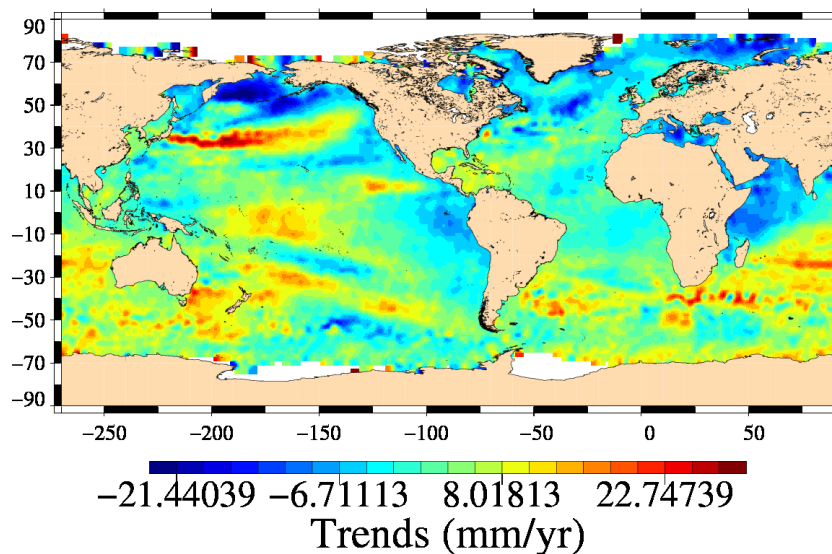
Description : The map of global statistics (mean, standard deviation) of SLA are calculated using successively both altimetric components in the SLA calculation over a large period. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements.

Diagnostic type : Global internal analyses

SLA with MOG2D_ERA trends : even pass numbers
Mission e2, cycles 1 to 85



SLA with MOG2D_ECMWF trends : even pass numbers
Mission e2, cycles 1 to 85



Diagnostic A203_c (mission e2)

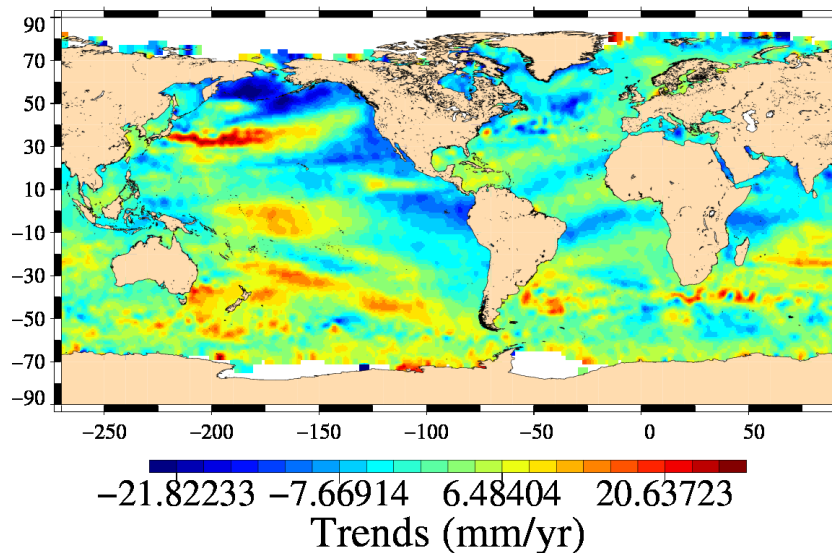
Name : Map of Sea Level Anomaly (SLA) over all the period

Input data : Along track SLA

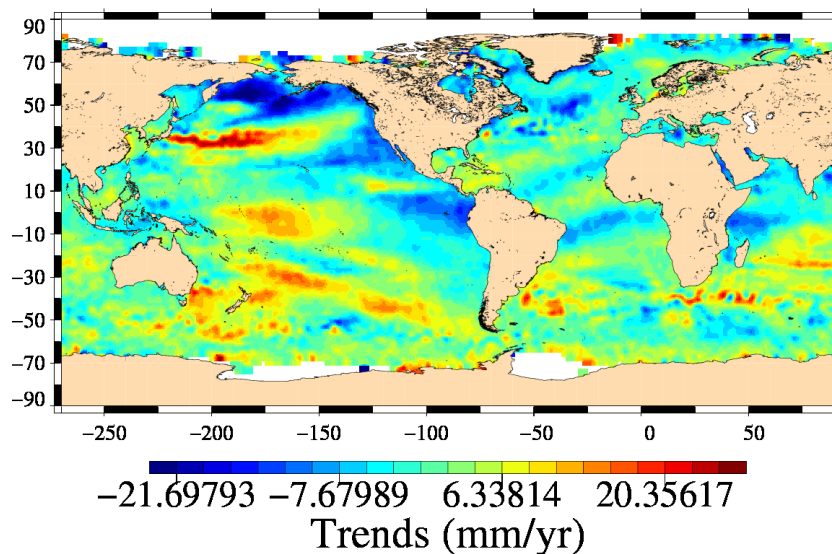
Description : The map of global statistics (mean, standard deviation) of SLA are calculated using successively both altimetric components in the SLA calculation over a large period. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements.

Diagnostic type : Global internal analyses

SLA with MOG2D_ERA trends : odd pass numbers
Mission e2, cycles 1 to 85



SLA with MOG2D_ECMWF trends : odd pass numbers
Mission e2, cycles 1 to 85



Diagnostic A203_a (mission tp)

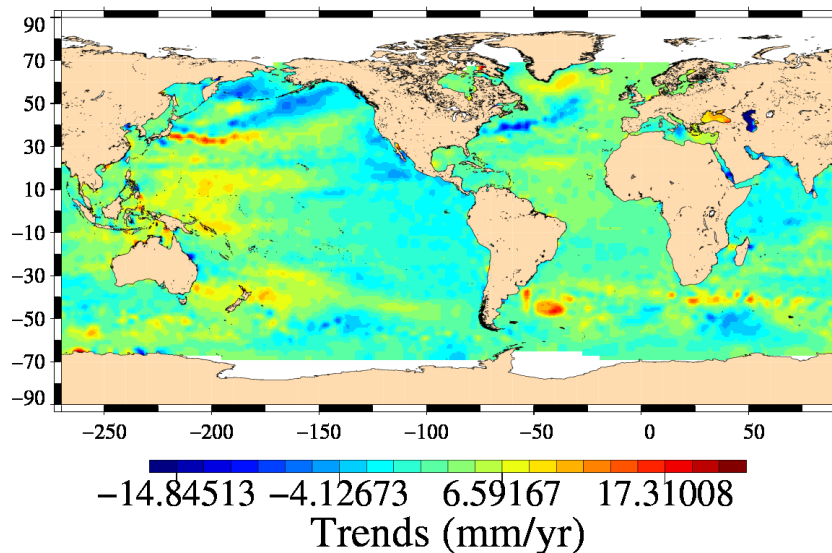
Name : Map of Sea Level Anomaly (SLA) over all the period

Input data : Along track SLA

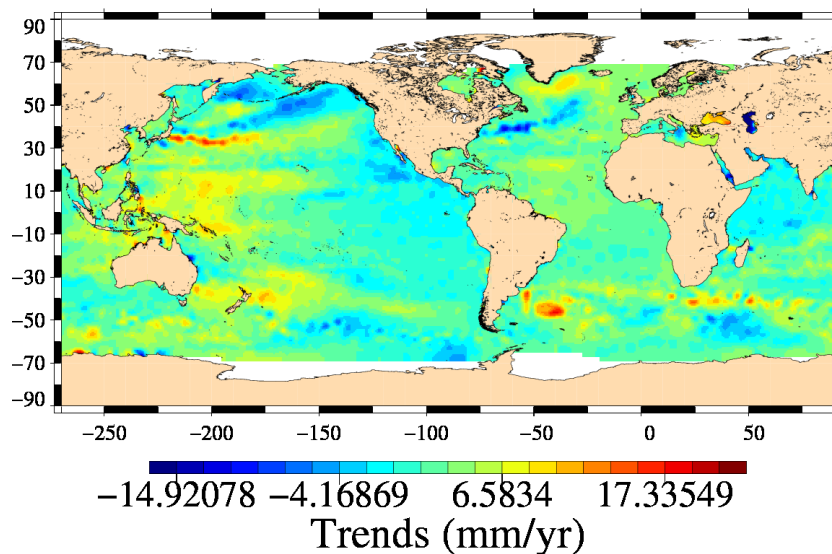
Description : The map of global statistics (mean, standard deviation) of SLA are calculated using successively both altimetric components in the SLA calculation over a large period. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements.

Diagnostic type : Global internal analyses

SLA with MOG2D_ERA trends
Mission tp, cycles 1 to 481



SLA with MOG2D_ECMWF trends
Mission tp, cycles 1 to 481



Diagnostic A203_b (mission tp)

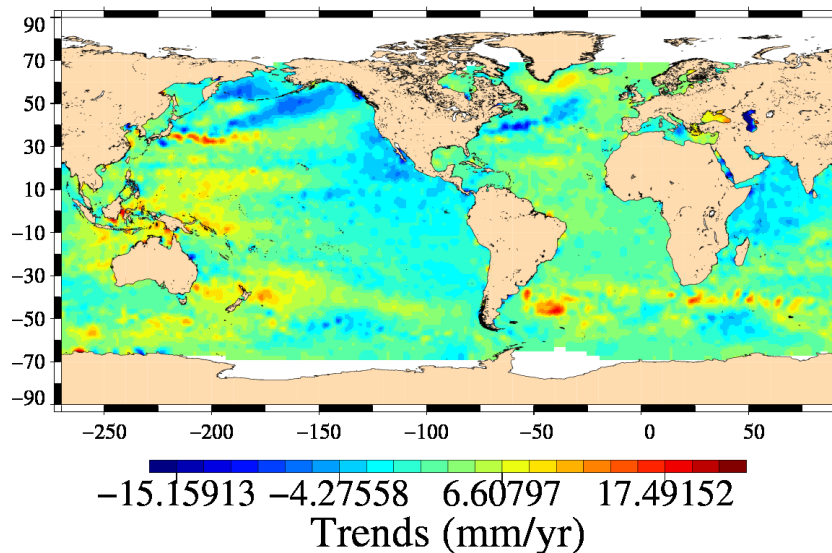
Name : Map of Sea Level Anomaly (SLA) over all the period

Input data : Along track SLA

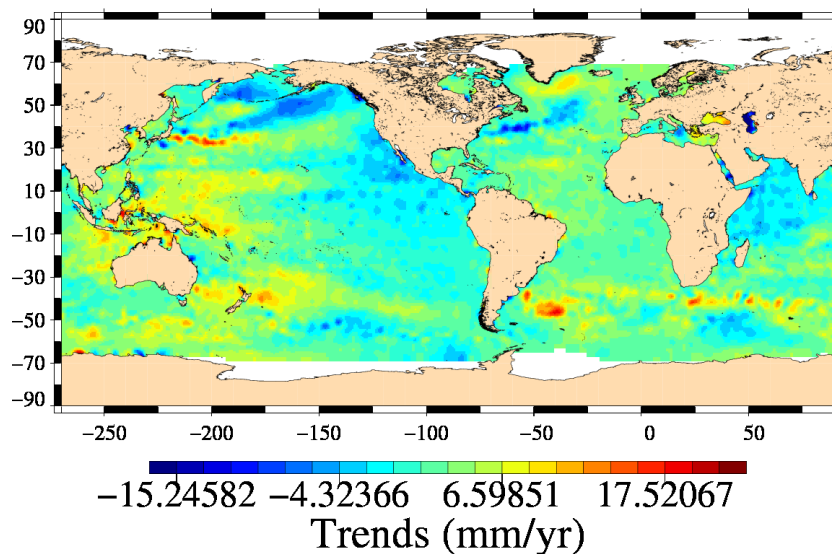
Description : The map of global statistics (mean, standard deviation) of SLA are calculated using successively both altimetric components in the SLA calculation over a large period. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements.

Diagnostic type : Global internal analyses

SLA with MOG2D_ERA trends : even pass numbers
Mission tp, cycles 1 to 481



SLA with MOG2D_ECMWF trends : even pass numbers
Mission tp, cycles 1 to 481



Diagnostic A203_c (mission tp)

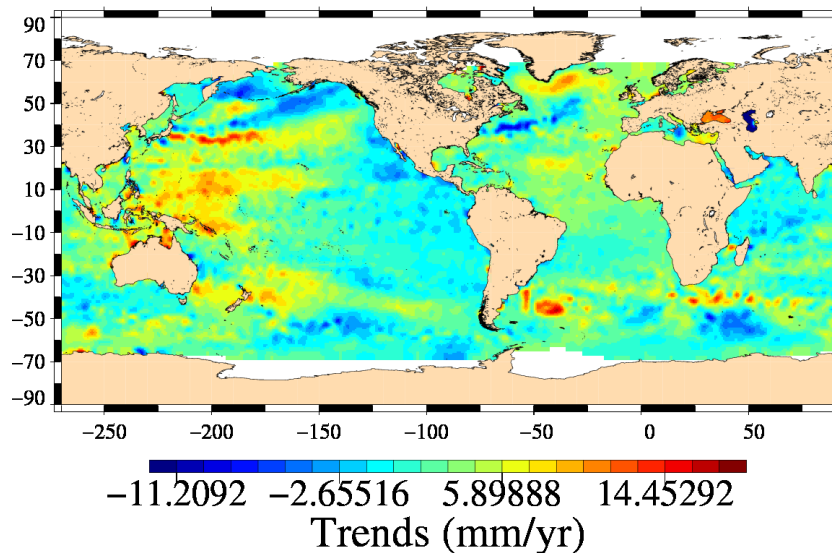
Name : Map of Sea Level Anomaly (SLA) over all the period

Input data : Along track SLA

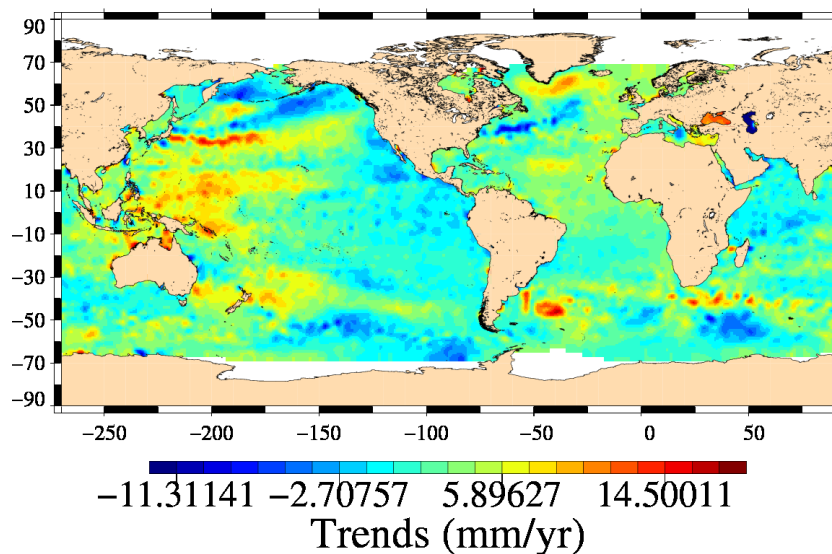
Description : The map of global statistics (mean, standard deviation) of SLA are calculated using successively both altimetric components in the SLA calculation over a large period. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements.

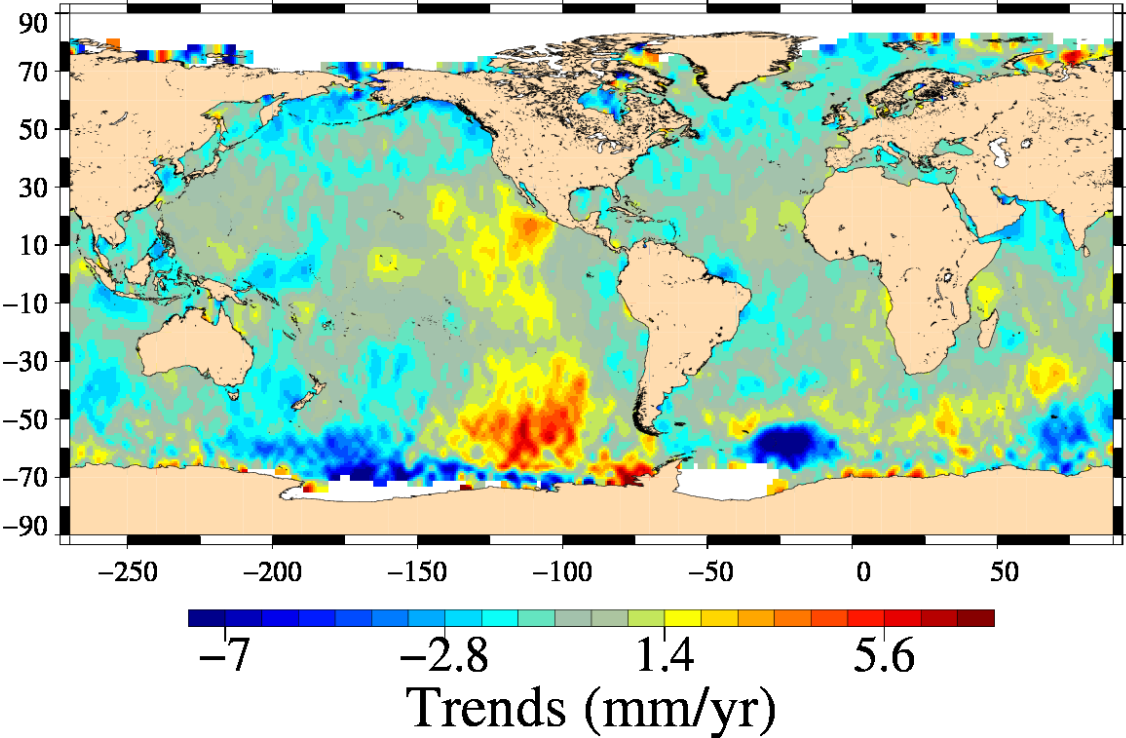
Diagnostic type : Global internal analyses

SLA with MOG2D_ERA trends : odd pass numbers
Mission tp, cycles 1 to 481



SLA with MOG2D_ECMWF trends : odd pass numbers
Mission tp, cycles 1 to 481



Diagnostic type : Global internal analyses	Diagnostic A204_a (mission e1)	
	Name : Differences between maps of SLA	
	Input data : Along track SLA	
	Description : The difference of SLA maps (mean, standard deviation, slope) is calculated from maps derived from diagnostic A203 using successively both altimetric components in the SLA calculation over a given period. This can be done globally, or separating in ascending and descending passes (except for SLA Grids).	
	<div>SLA with MOG2D_ERA trends – SLA with MOG2D_ECMWF trends</div> <div>Mission e1, cycles 15 to 53</div> 	

Diagnostic A204_b (mission e1)

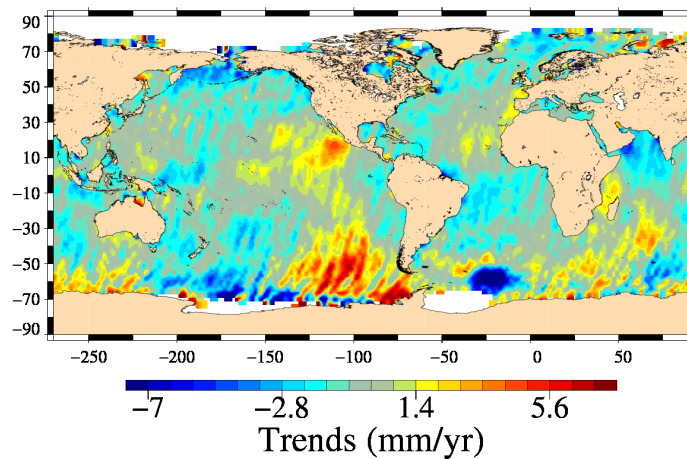
Name : Differences between maps of SLA

Input data : Along track SLA

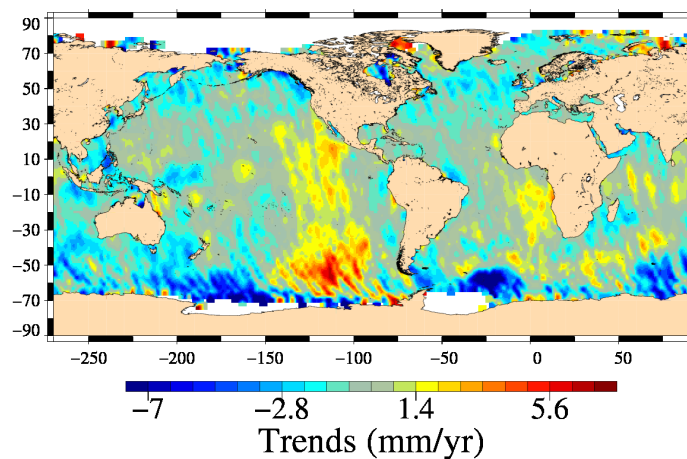
Description : The difference of SLA maps (mean, standard deviation, slope) is calculated from maps derived from diagnostic A203 using successively both altimetric components in the SLA calculation over a given period. This can be done globally, or separating in ascending and descending passes (except for SLA Grids).

Diagnostic type : Global internal analyses

ith MOG2D_ERA trends – SLA with MOG2D_ECMWF trends : even pass n
Mission e1, cycles 15 to 53



ith MOG2D_ERA trends – SLA with MOG2D_ECMWF trends : odd pass n
Mission e1, cycles 15 to 53



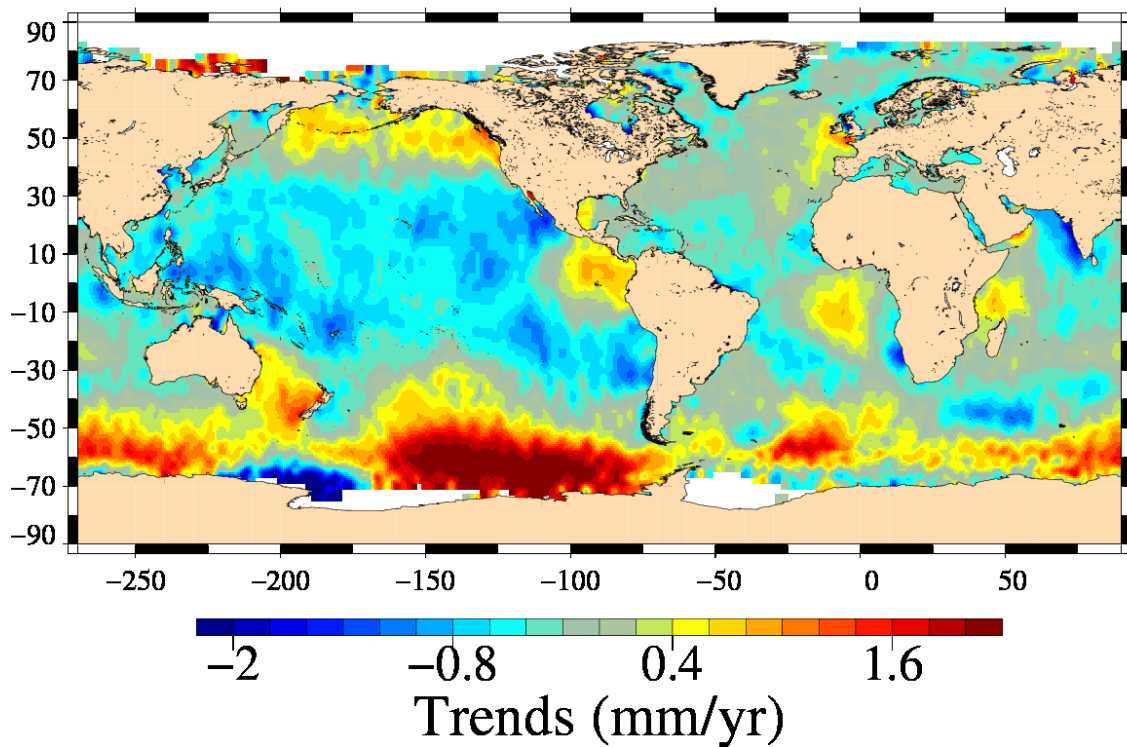
Diagnostic A204_a (mission e2)

Name : Differences between maps of SLA

Input data : Along track SLA

Description : The difference of SLA maps (mean, standard deviation, slope) is calculated from maps derived from diagnostic A203 using successively both altimetric components in the SLA calculation over a given period. This can be done globally, or separating in ascending and descending passes (except for SLA Grids).

SLA with MOG2D_ERA trends – SLA with MOG2D_ECMWF trends
Mission e2, cycles 1 to 85



Diagnostic type : Global internal analyses

Diagnostic A204_b (mission e2)

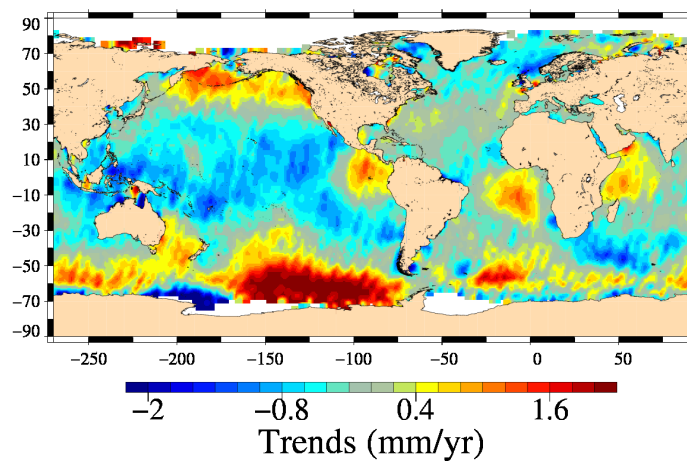
Name : Differences between maps of SLA

Input data : Along track SLA

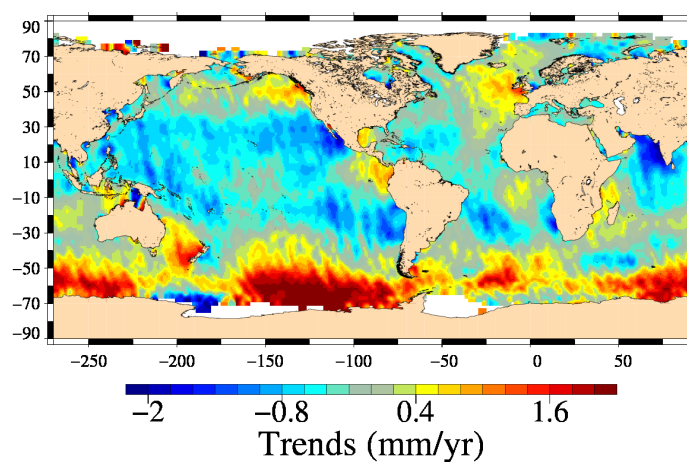
Description : The difference of SLA maps (mean, standard deviation, slope) is calculated from maps derived from diagnostic A203 using successively both altimetric components in the SLA calculation over a given period. This can be done globally, or separating in ascending and descending passes (except for SLA Grids).

Diagnostic type : Global internal analyses

ith MOG2D_ERA trends – SLA with MOG2D_ECMWF trends : even pass n
Mission e2, cycles 1 to 85



ith MOG2D_ERA trends – SLA with MOG2D_ECMWF trends : odd pass n
Mission e2, cycles 1 to 85



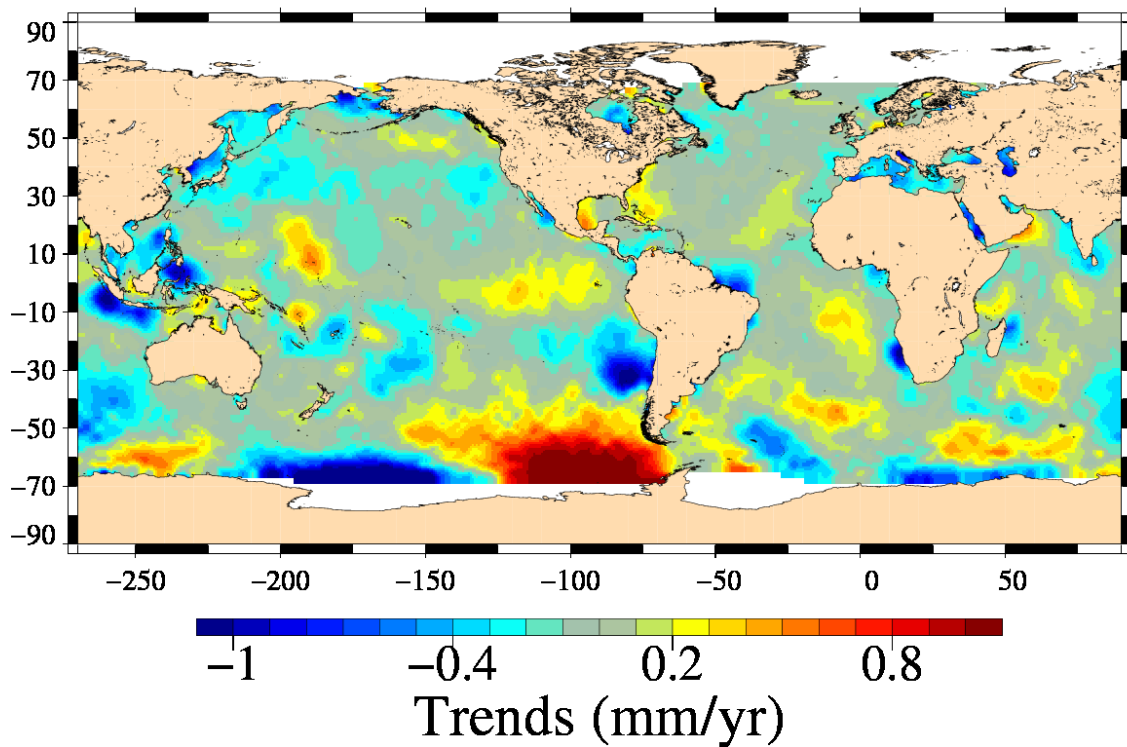
Diagnostic A204_a (mission tp)

Name : Differences between maps of SLA

Input data : Along track SLA

Description : The difference of SLA maps (mean, standard deviation, slope) is calculated from maps derived from diagnostic A203 using successively both altimetric components in the SLA calculation over a given period. This can be done globally, or separating in ascending and descending passes (except for SLA Grids).

SLA with MOG2D_ERA trends – SLA with MOG2D_ECMWF trends
Mission tp, cycles 1 to 481



Diagnostic A204_b (mission tp)

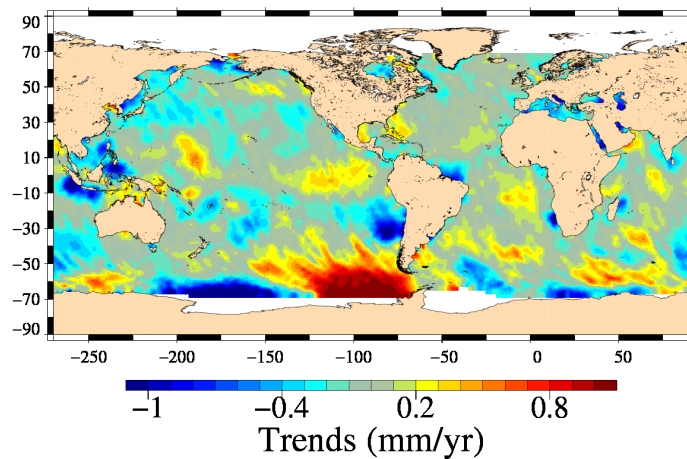
Name : Differences between maps of SLA

Input data : Along track SLA

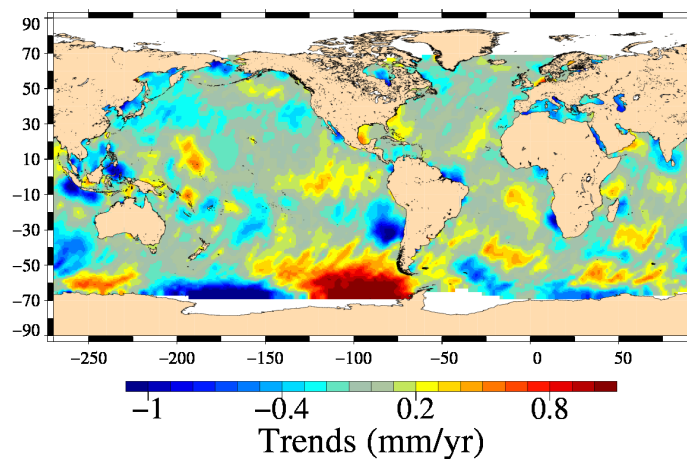
Description : The difference of SLA maps (mean, standard deviation, slope) is calculated from maps derived from diagnostic A203 using successively both altimetric components in the SLA calculation over a given period. This can be done globally, or separating in ascending and descending passes (except for SLA Grids).

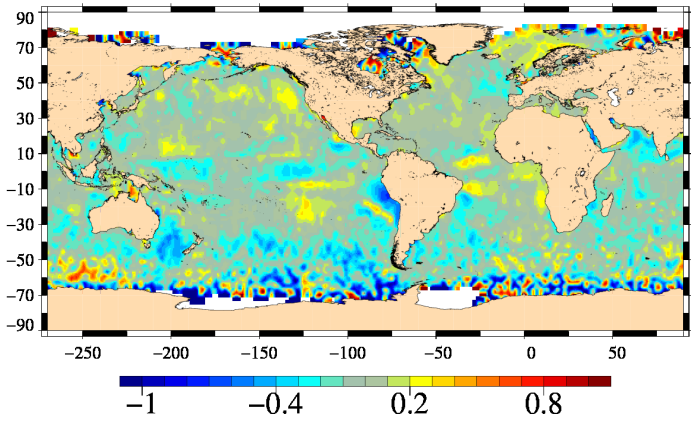
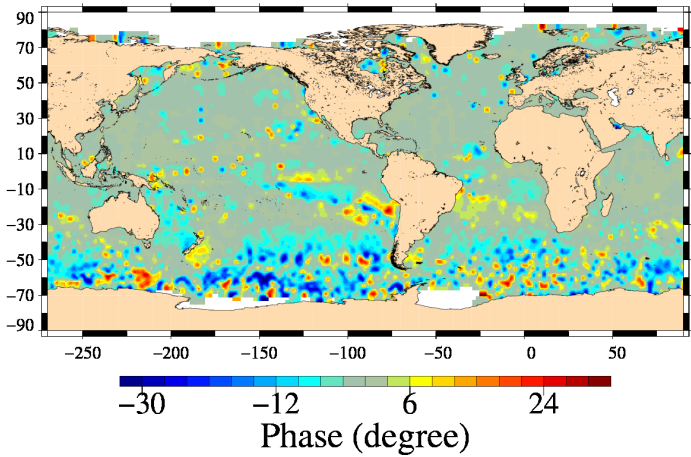
Diagnostic type : Global internal analyses

ith MOG2D_ERA trends – SLA with MOG2D_ECMWF trends : even pass n
Mission tp, cycles 1 to 481



ith MOG2D_ERA trends – SLA with MOG2D_ECMWF trends : odd pass n
Mission tp, cycles 1 to 481



Diagnostic type : Global internal analyses	Diagnostic A205_a (mission e1)	
	Name : Differences between maps of SLA (2)	
	Input data : Along track SLA	
	Description : The difference of SLA maps (mean, standard deviation, slope) is calculated from maps derived from diagnostic A203 using successively both altimetric components in the SLA calculation over a given period. This can be done globally, or separating in ascending and descending passes (except for SLA Grids).	
	<p>h MOG2D_ERA amplitude – SLA with MOG2D_ECMWF amplitude : annu Mission e1, cycles 15 to 53</p>  <p>Amplitude (cm)</p> <p>with MOG2D_ERA phase – SLA with MOG2D_ECMWF phase : annual sig Mission e1, cycles 15 to 53</p>  <p>Phase (degree)</p>	

Diagnostic A205_b (mission e1)

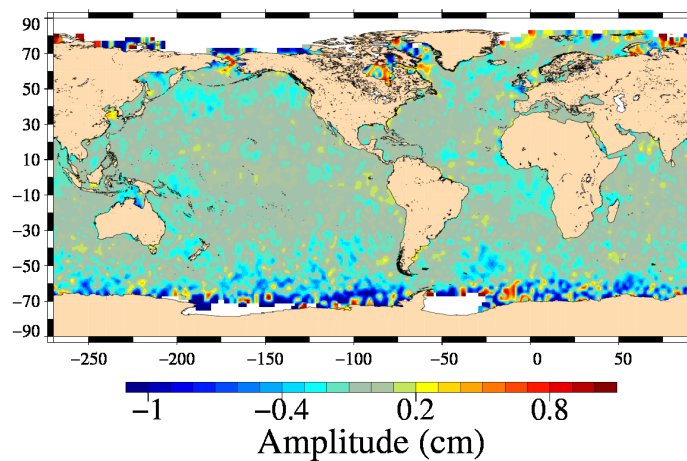
Name : Differences between maps of SLA (2)

Input data : Along track SLA

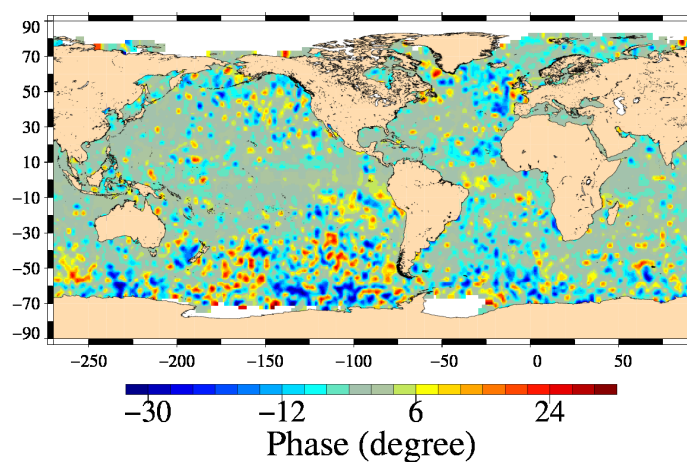
Description : The difference of SLA maps (mean, standard deviation, slope) is calculated from maps derived from diagnostic A203 using successively both altimetric components in the SLA calculation over a given period. This can be done globally, or separating in ascending and descending passes (except for SLA Grids).

Diagnostic type : Global internal analyses

MOG2D_ERA amplitude – SLA with MOG2D_ECMWF amplitude : semi-annual
Mission e1, cycles 15 to 53

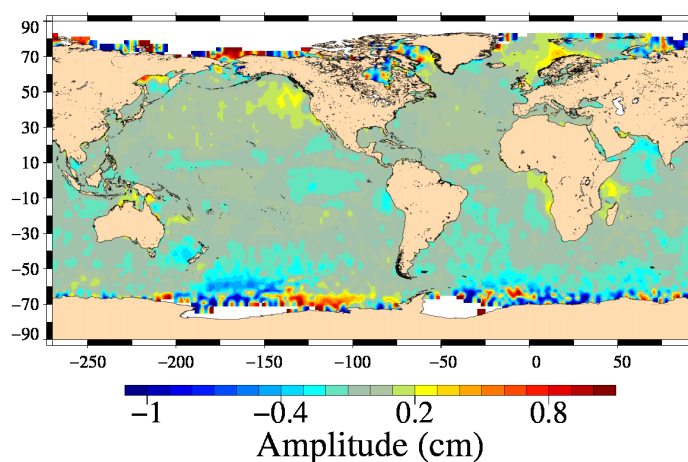


MOG2D_ERA phase – SLA with MOG2D_ECMWF phase : semi-annual
Mission e1, cycles 15 to 53

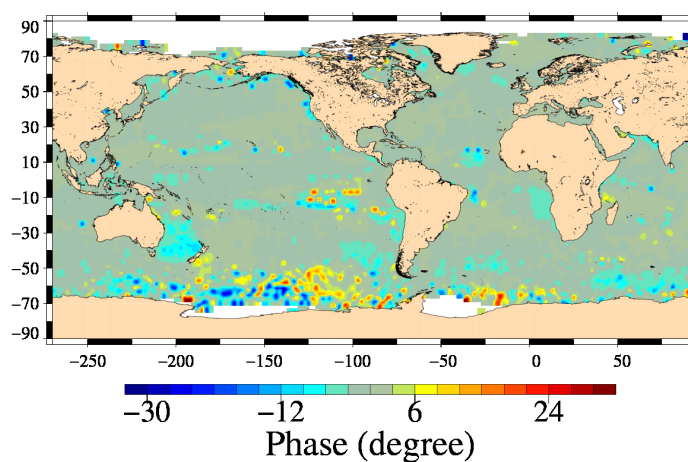


Diagnostic A205_a (mission e2)**Name :** Differences between maps of SLA (2)**Input data :** Along track SLA**Description :** The difference of SLA maps (mean, standard deviation, slope) is calculated from maps derived from diagnostic A203 using successively both altimetric components in the SLA calculation over a given period. This can be done globally, or separating in ascending and descending passes (except for SLA Grids).

h MOG2D_ERA amplitude – SLA with MOG2D_ECMWF amplitude : annual sig
Mission e2, cycles 1 to 85



h with MOG2D_ERA phase – SLA with MOG2D_ECMWF phase : annual sig
Mission e2, cycles 1 to 85



Diagnostic A205_b (mission e2)

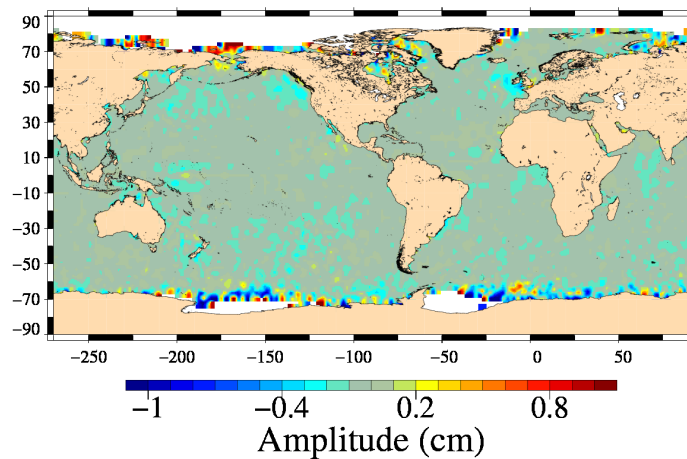
Name : Differences between maps of SLA (2)

Input data : Along track SLA

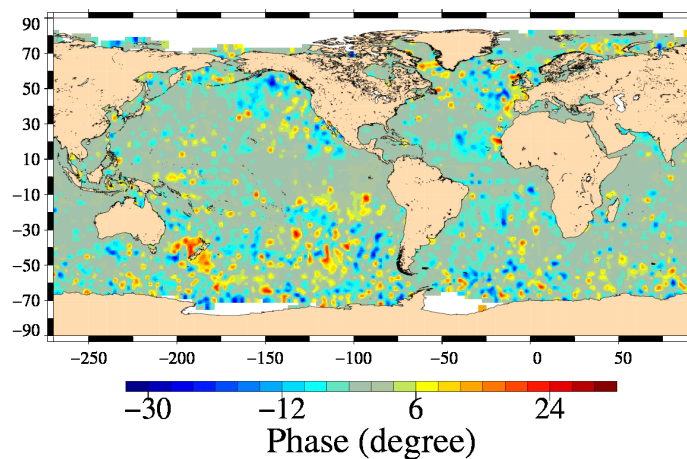
Description : The difference of SLA maps (mean, standard deviation, slope) is calculated from maps derived from diagnostic A203 using successively both altimetric components in the SLA calculation over a given period. This can be done globally, or separating in ascending and descending passes (except for SLA Grids).

Diagnostic type : Global internal analyses

MOG2D_ERA amplitude – SLA with MOG2D_ECMWF amplitude : semi-annual
Mission e2, cycles 1 to 85



MOG2D_ERA phase – SLA with MOG2D_ECMWF phase : semi-annual
Mission e2, cycles 1 to 85



Diagnostic A205_a (mission tp)

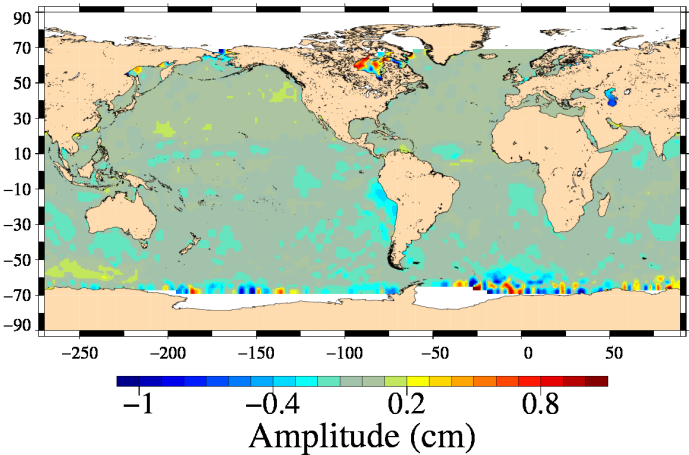
Name : Differences between maps of SLA (2)

Input data : Along track SLA

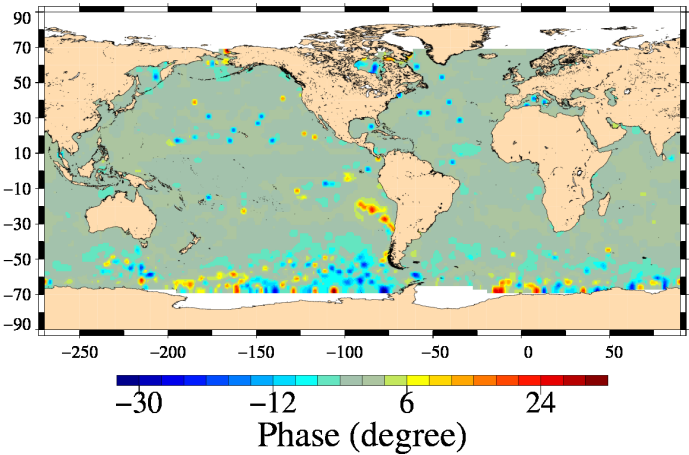
Description : The difference of SLA maps (mean, standard deviation, slope) is calculated from maps derived from diagnostic A203 using successively both altimetric components in the SLA calculation over a given period. This can be done globally, or separating in ascending and descending passes (except for SLA Grids).

Diagnostic type : Global internal analyses

h MOG2D_ERA amplitude – SLA with MOG2D_ECMWF amplitude : annu
Mission tp, cycles 1 to 481



with MOG2D_ERA phase – SLA with MOG2D_ECMWF phase : annual si
Mission tp, cycles 1 to 481



Diagnostic A205_b (mission tp)

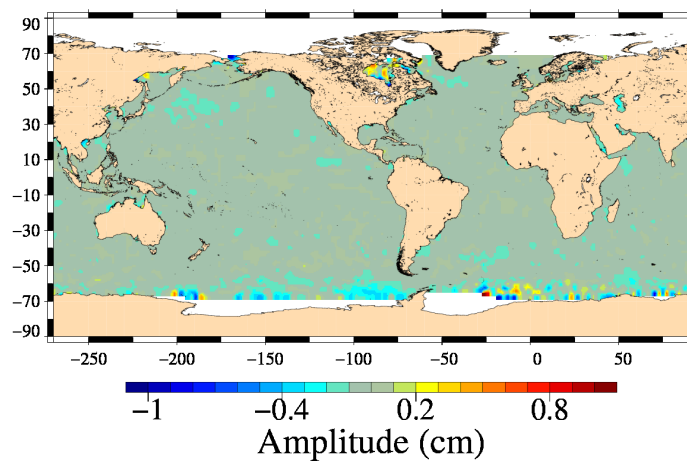
Name : Differences between maps of SLA (2)

Input data : Along track SLA

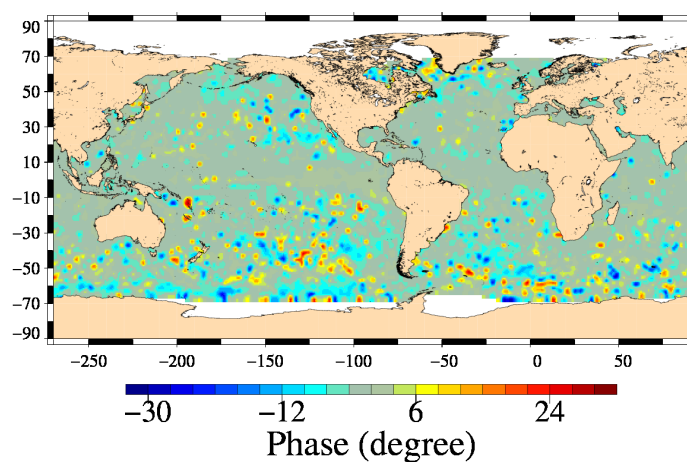
Description : The difference of SLA maps (mean, standard deviation, slope) is calculated from maps derived from diagnostic A203 using successively both altimetric components in the SLA calculation over a given period. This can be done globally, or separating in ascending and descending passes (except for SLA Grids).

Diagnostic type : Global internal analyses

MOG2D_ERA amplitude – SLA with MOG2D_ECMWF amplitude : semi-annual
Mission tp, cycles 1 to 481



MOG2D_ERA phase – SLA with MOG2D_ECMWF phase : semi-annual
Mission tp, cycles 1 to 481

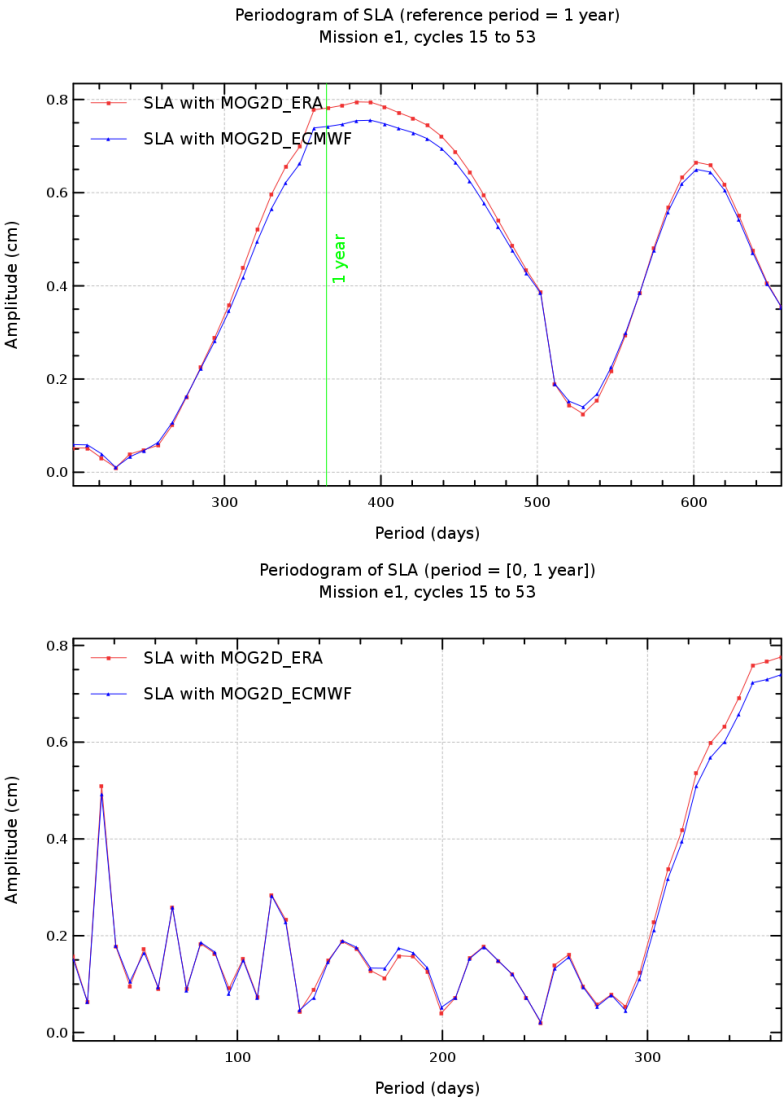


Diagnostic A206_a (mission e1)

Name : Periodogram derived from temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

Description : The periodogram derived from temporal evolution of SLA (global, northern or southern hemisphere) can be done over all periods or focusing on particular periods, such as annual, semi annual or 60 day signal. Therefore mean of SLA differences are computed (every day or cycle), and time data series are plotted as a periodogram.



Diagnostic A206_b (mission e1)

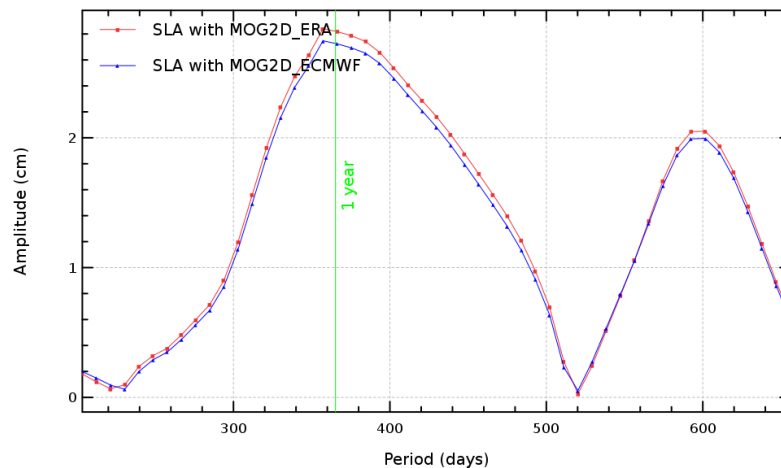
Name : Periodogram derived from temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

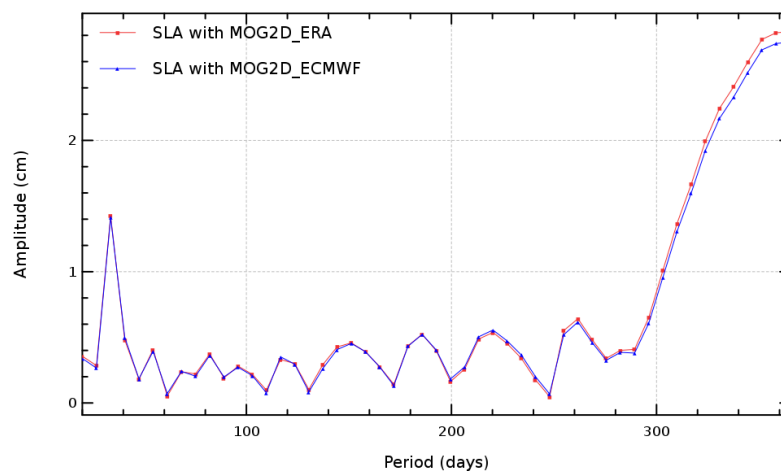
Description : The periodogram derived from temporal evolution of SLA (global, northern or southern hemisphere) can be done over all periods or focusing on particular periods, such as annual, semi annual or 60 day signal. Therefore mean of SLA differences are computed (every day or cycle), and time data series are plotted as a periodogram.

Diagnostic type : Global internal analyses

Periodogram of north hemisphere SLA (reference period = 1 year)
Mission e1, cycles 15 to 53



Periodogram of north hemisphere SLA (period = [0, 1 year])
Mission e1, cycles 15 to 53



Diagnostic A206_c (mission e1)

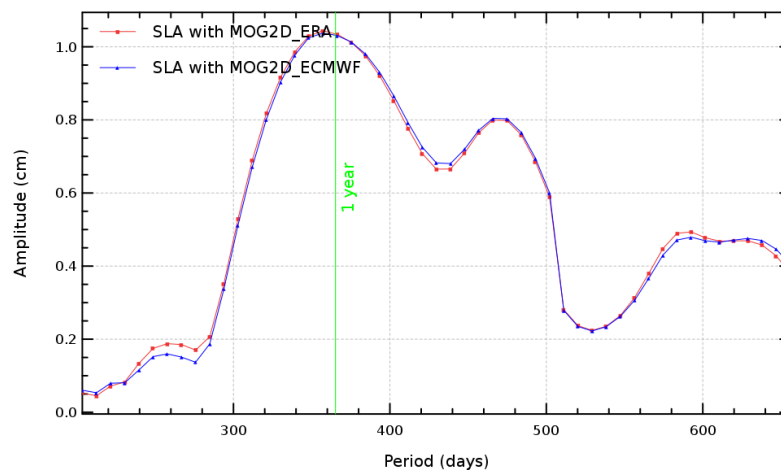
Name : Periodogram derived from temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

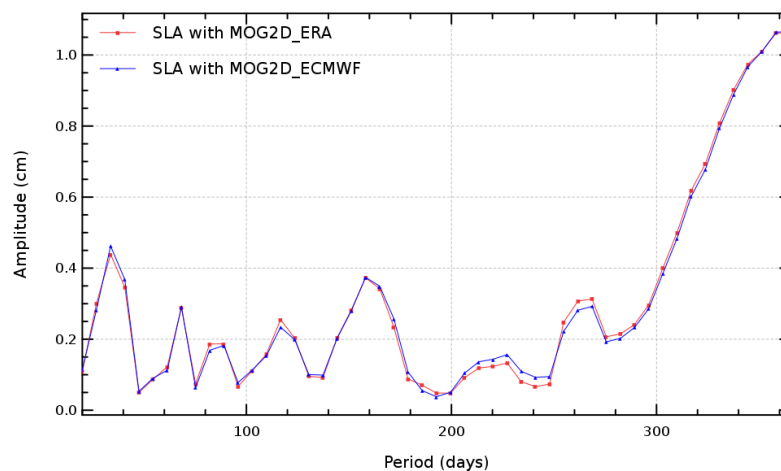
Description : The periodogram derived from temporal evolution of SLA (global, northern or southern hemisphere) can be done over all periods or focusing on particular periods, such as annual, semi annual or 60 day signal. Therefore mean of SLA differences are computed (every day or cycle), and time data series are plotted as a periodogram.

Diagnostic type : Global internal analyses

Periodogram of south hemisphere SLA (reference period = 1 year)
Mission e1, cycles 15 to 53



Periodogram of south hemisphere SLA (period = [0, 1 year])
Mission e1, cycles 15 to 53



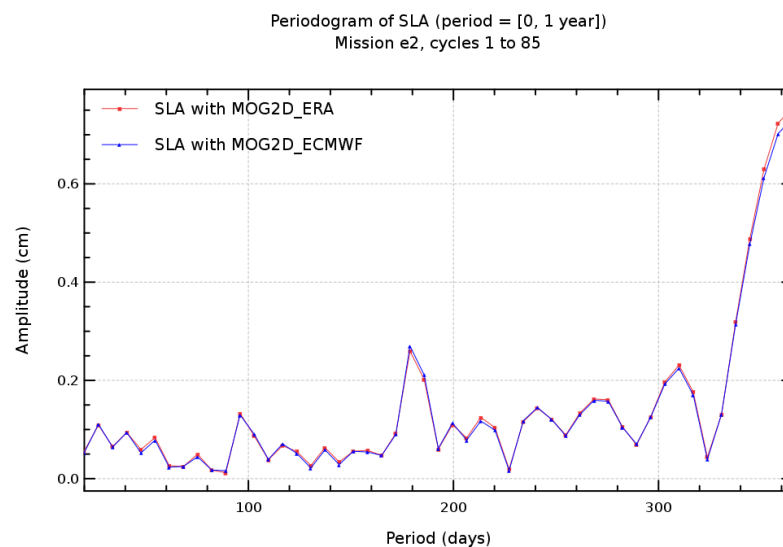
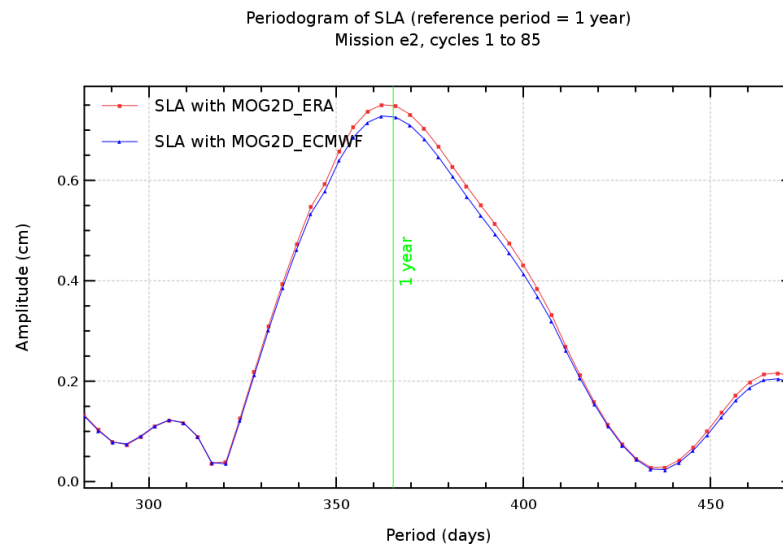
Diagnostic A206_a (mission e2)

Name : Periodogram derived from temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

Description : The periodogram derived from temporal evolution of SLA (global, northern or southern hemisphere) can be done over all periods or focusing on particular periods, such as annual, semi annual or 60 day signal. Therefore mean of SLA differences are computed (every day or cycle), and time data series are plotted as a periodogram.

Diagnostic type : Global internal analyses



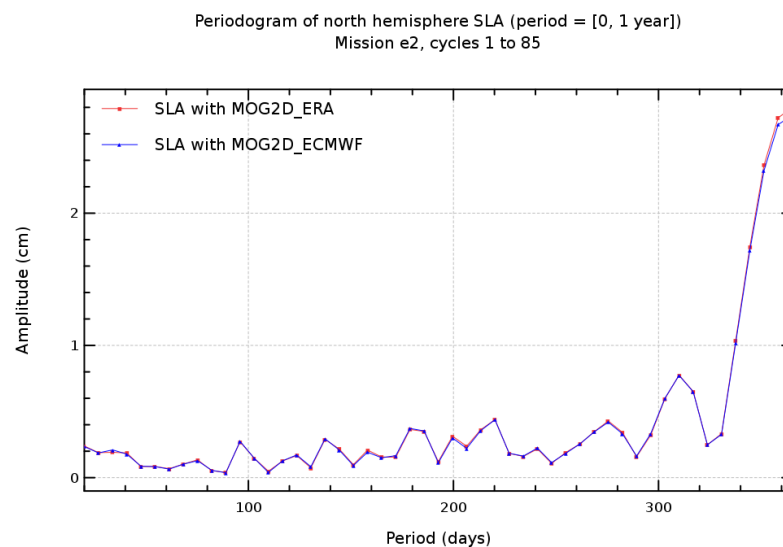
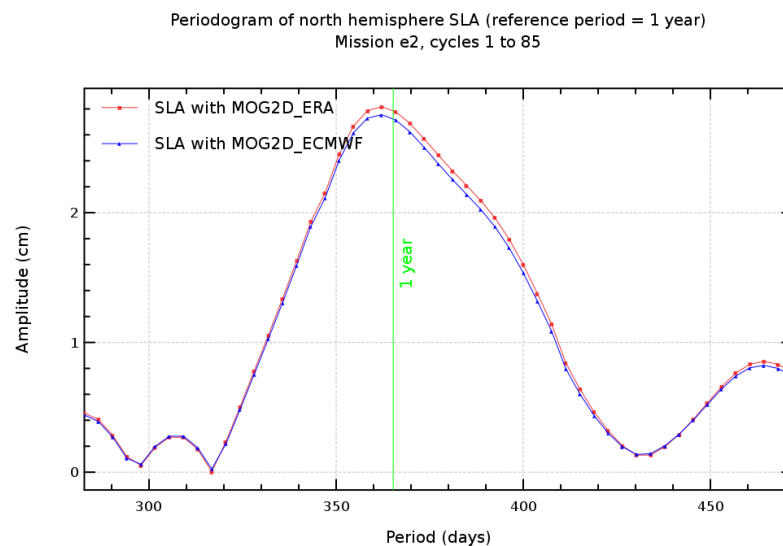
Diagnostic A206_b (mission e2)

Name : Periodogram derived from temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

Description : The periodogram derived from temporal evolution of SLA (global, northern or southern hemisphere) can be done over all periods or focusing on particular periods, such as annual, semi annual or 60 day signal. Therefore mean of SLA differences are computed (every day or cycle), and time data series are plotted as a periodogram.

Diagnostic type : Global internal analyses



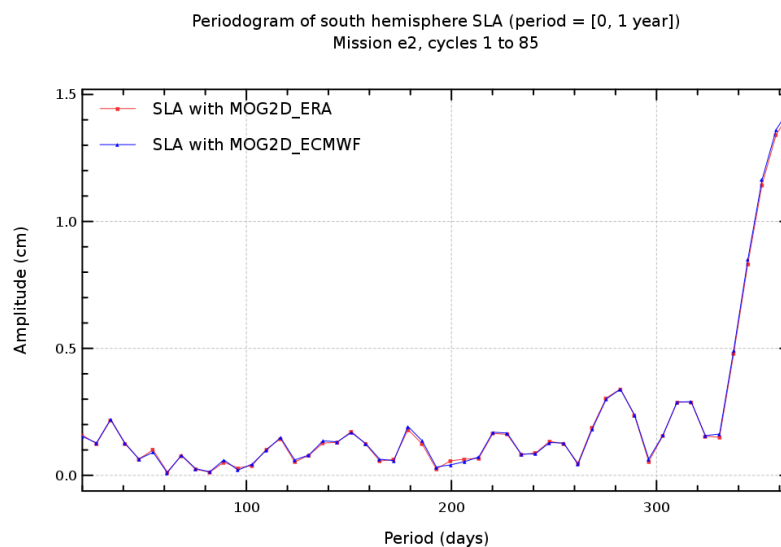
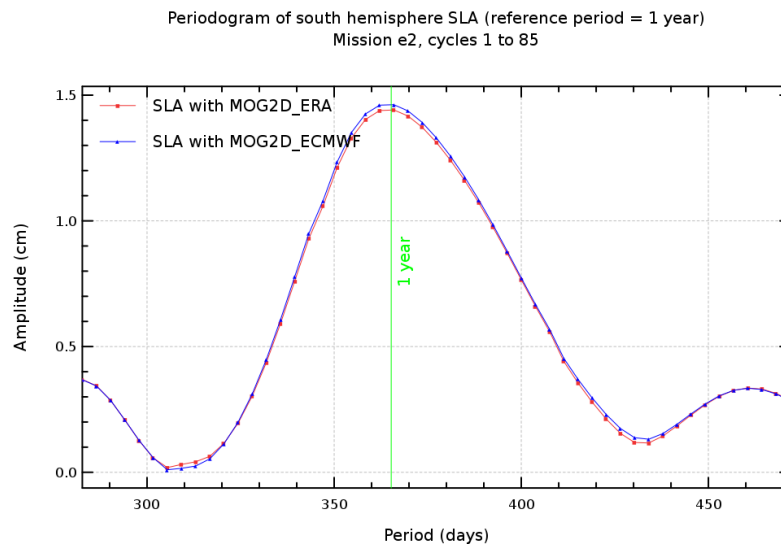
Diagnostic A206_c (mission e2)

Name : Periodogram derived from temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

Description : The periodogram derived from temporal evolution of SLA (global, northern or southern hemisphere) can be done over all periods or focusing on particular periods, such as annual, semi annual or 60 day signal. Therefore mean of SLA differences are computed (every day or cycle), and time data series are plotted as a periodogram.

Diagnostic type : Global internal analyses



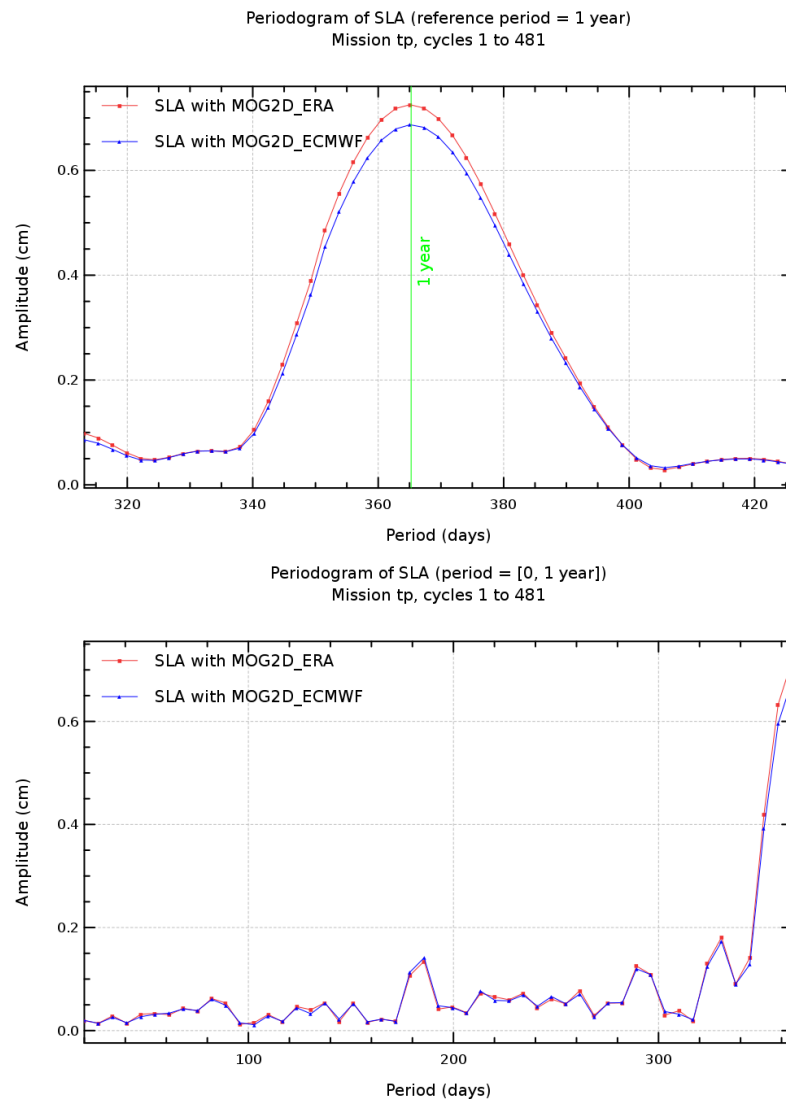
Diagnostic A206_a (mission tp)

Name : Periodogram derived from temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

Description : The periodogram derived from temporal evolution of SLA (global, northern or southern hemisphere) can be done over all periods or focusing on particular periods, such as annual, semi annual or 60 day signal. Therefore mean of SLA differences are computed (every day or cycle), and time data series are plotted as a periodogram.

Diagnostic type : Global internal analyses



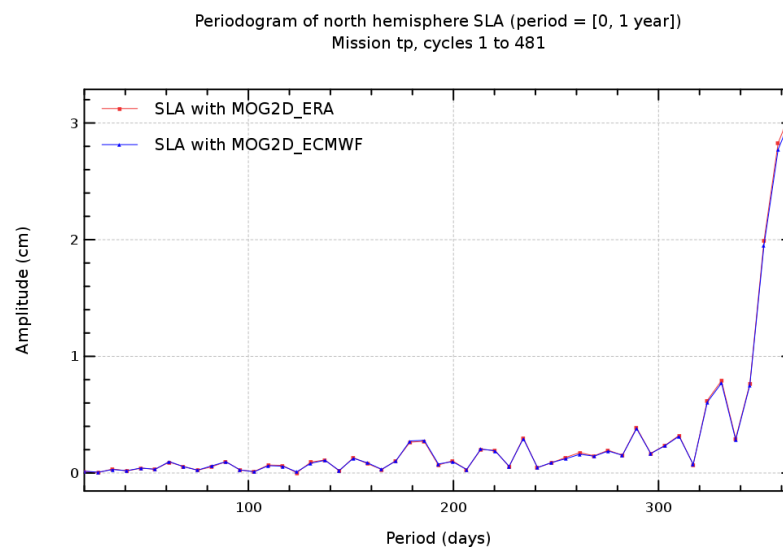
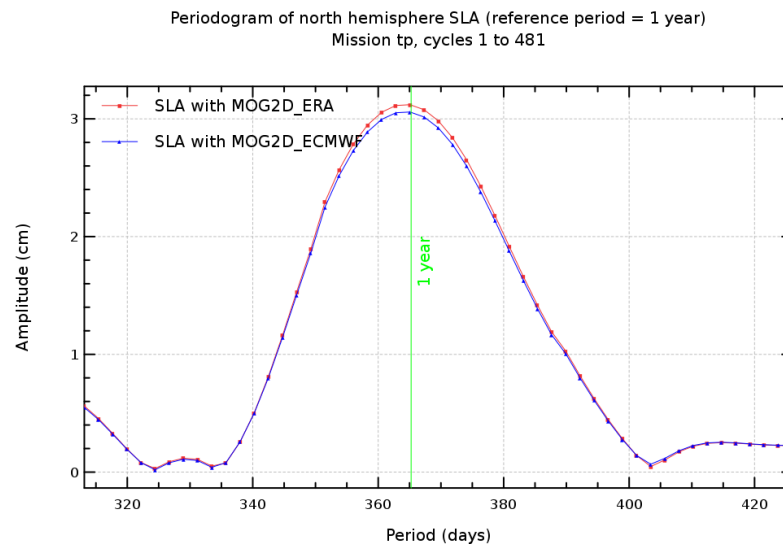
Diagnostic A206_b (mission tp)

Name : Periodogram derived from temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

Description : The periodogram derived from temporal evolution of SLA (global, northern or southern hemisphere) can be done over all periods or focusing on particular periods, such as annual, semi annual or 60 day signal. Therefore mean of SLA differences are computed (every day or cycle), and time data series are plotted as a periodogram.

Diagnostic type : Global internal analyses



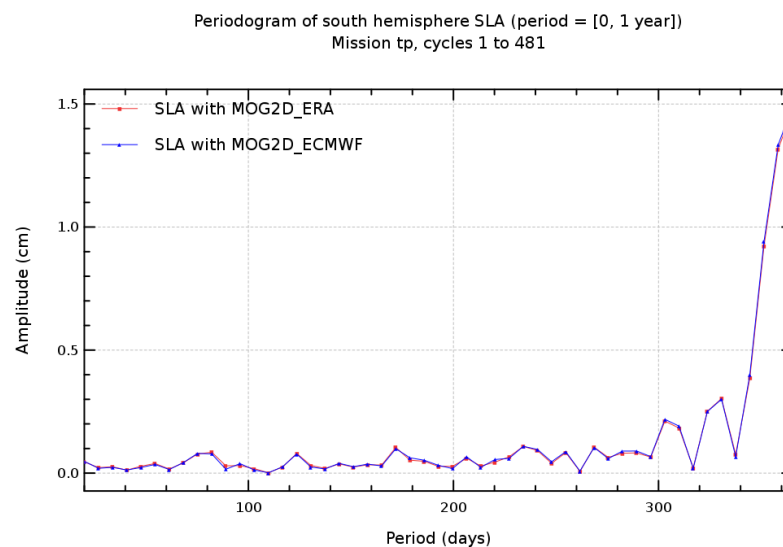
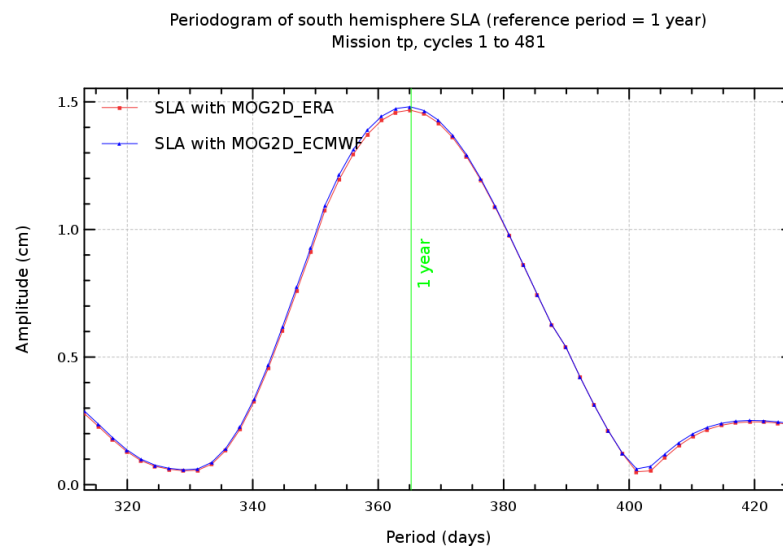
Diagnostic A206_c (mission tp)

Name : Periodogram derived from temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

Description : The periodogram derived from temporal evolution of SLA (global, northern or southern hemisphere) can be done over all periods or focusing on particular periods, such as annual, semi annual or 60 day signal. Therefore mean of SLA differences are computed (every day or cycle), and time data series are plotted as a periodogram.

Diagnostic type : Global internal analyses

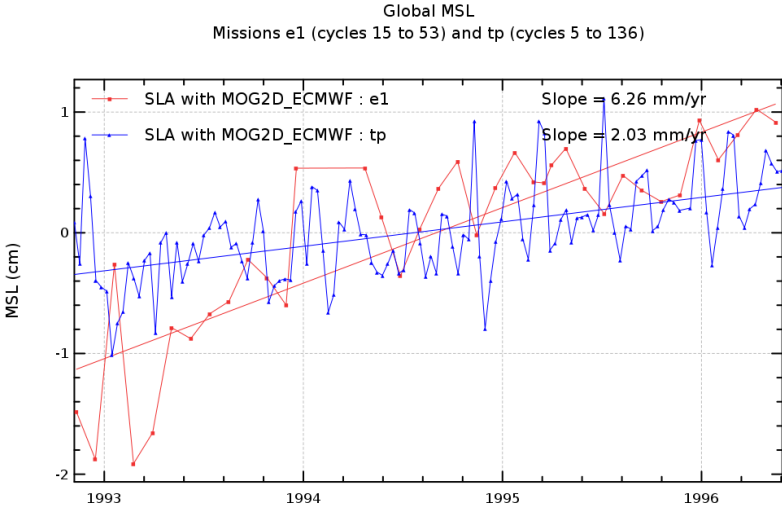
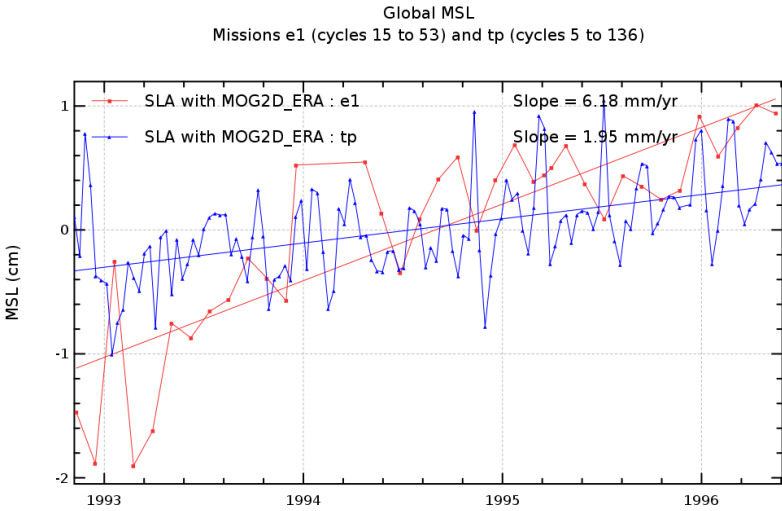


Diagnostic B201_a

Name : Temporal evolution of Sea level Anomaly (SLA) for 2 missions over the same period

Input data : Along track SLA

Description : Temporal evolution of SLA statistics (mean, standard deviation) of 2 or more missions are computed over the same period as longest as possible using successively both components in the SLA calculation. This can be done globally, or separating in ascending and descending or in northern and southern hemisphere. In order to assure comparability, statistics are computed using sea level standard calculation (mean per box of 2x2 and weighted by cosine of latitude for the global mean) limited to 66 latitude.



Diagnostic B201_b

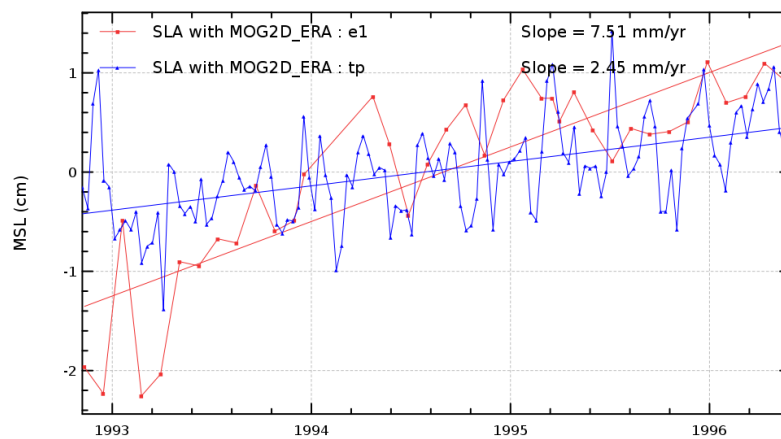
Name : Temporal evolution of Sea level Anomaly (SLA) for 2 missions over the same period

Input data : Along track SLA

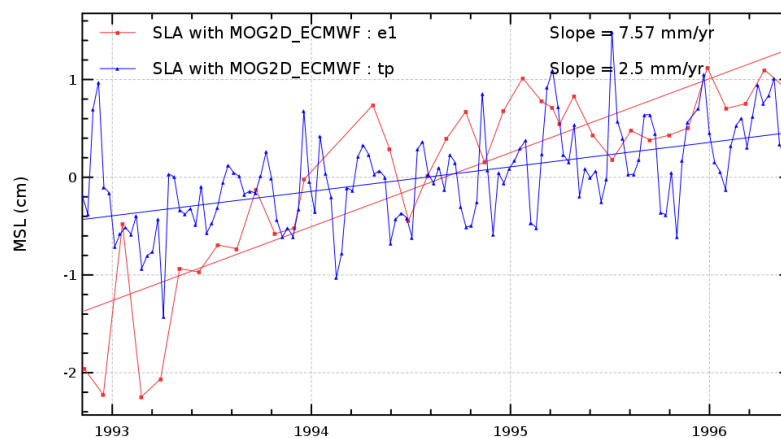
Description : Temporal evolution of SLA statistics (mean, standard deviation) of 2 or more missions are computed over the same period as longest as possible using successively both components in the SLA calculation. This can be done globally, or separating in ascending and descending or in northern and southern hemisphere. In order to assure comparability, statistics are computed using sea level standard calculation (mean per box of 2x2 and weighted by cosine of latitude for the global mean) limited to 66 latitude.

Diagnostic type : Global multi-mission comparisons

Global MSL, selecting even pass numbers
Missions e1 (cycles 15 to 53) and tp (cycles 5 to 136)



Global MSL, selecting even pass numbers
Missions e1 (cycles 15 to 53) and tp (cycles 5 to 136)



Diagnostic B201_c

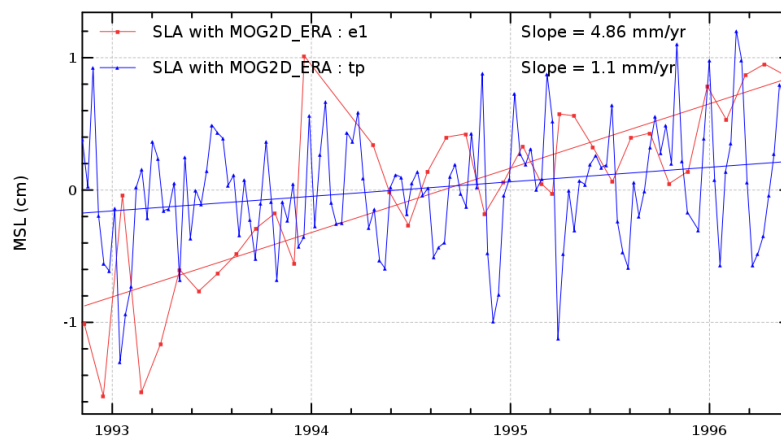
Name : Temporal evolution of Sea level Anomaly (SLA) for 2 missions over the same period

Input data : Along track SLA

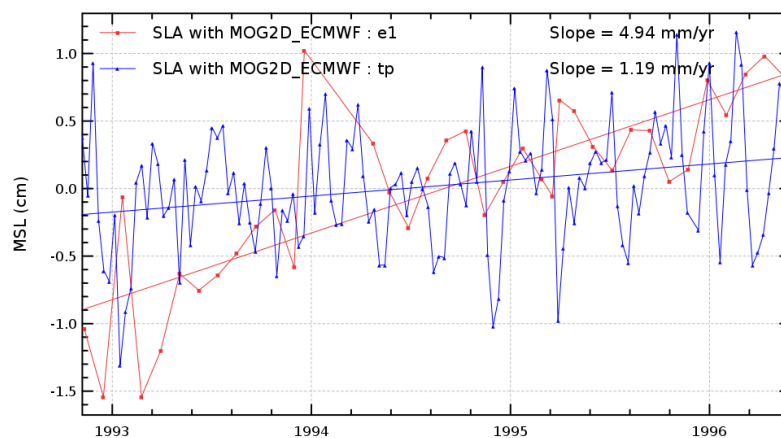
Description : Temporal evolution of SLA statistics (mean, standard deviation) of 2 or more missions are computed over the same period as longest as possible using successively both components in the SLA calculation. This can be done globally, or separating in ascending and descending or in northern and southern hemisphere. In order to assure comparability, statistics are computed using sea level standard calculation (mean per box of 2x2 and weighted by cosine of latitude for the global mean) limited to 66 latitude.

Diagnostic type : Global multi-mission comparisons

Global MSL, selecting odd pass numbers
Missions e1 (cycles 15 to 53) and tp (cycles 5 to 136)



Global MSL, selecting odd pass numbers
Missions e1 (cycles 15 to 53) and tp (cycles 5 to 136)



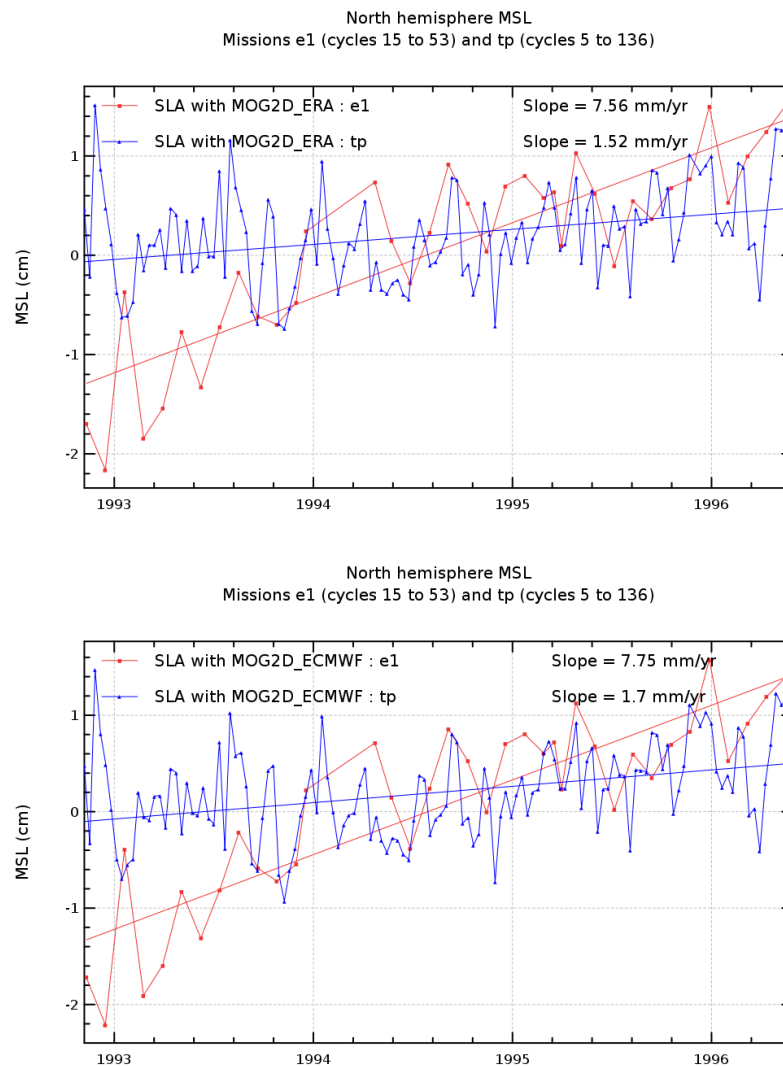
Diagnostic B201_d

Name : Temporal evolution of Sea level Anomaly (SLA) for 2 missions over the same period

Input data : Along track SLA

Description : Temporal evolution of SLA statistics (mean, standard deviation) of 2 or more missions are computed over the same period as longest as possible using successively both components in the SLA calculation. This can be done globally, or separating in ascending and descending or in northern and southern hemisphere. In order to assure comparability, statistics are computed using sea level standard calculation (mean per box of 2x2 and weighted by cosine of latitude for the global mean) limited to 66 latitude.

Diagnostic type : Global multi-mission comparisons



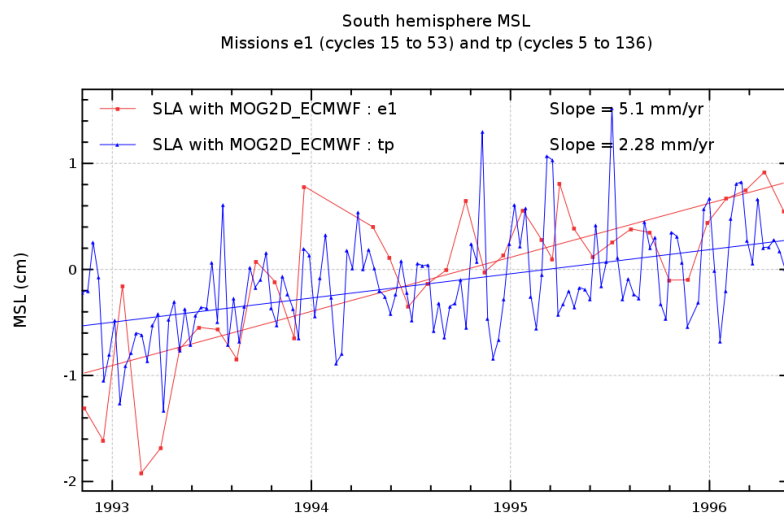
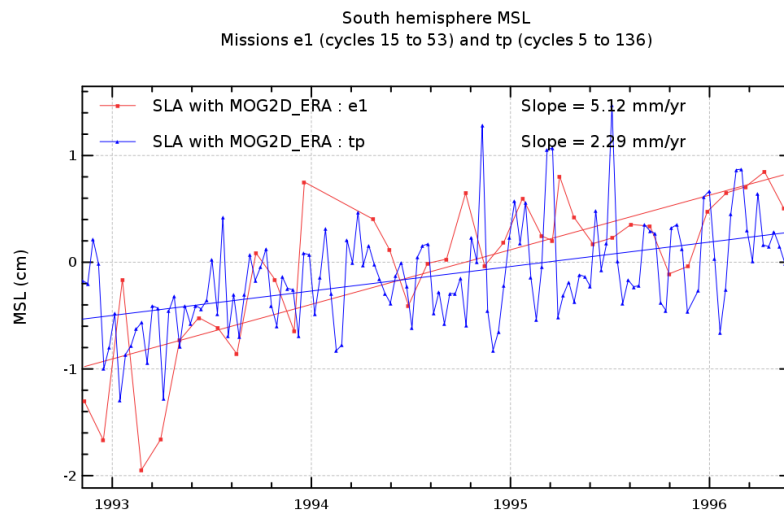
Diagnostic B201_e

Name : Temporal evolution of Sea level Anomaly (SLA) for 2 missions over the same period

Input data : Along track SLA

Description : Temporal evolution of SLA statistics (mean, standard deviation) of 2 or more missions are computed over the same period as longest as possible using successively both components in the SLA calculation. This can be done globally, or separating in ascending and descending or in northern and southern hemisphere. In order to assure comparability, statistics are computed using sea level standard calculation (mean per box of 2x2 and weighted by cosine of latitude for the global mean) limited to 66 latitude.

Diagnostic type : Global multi-mission comparisons



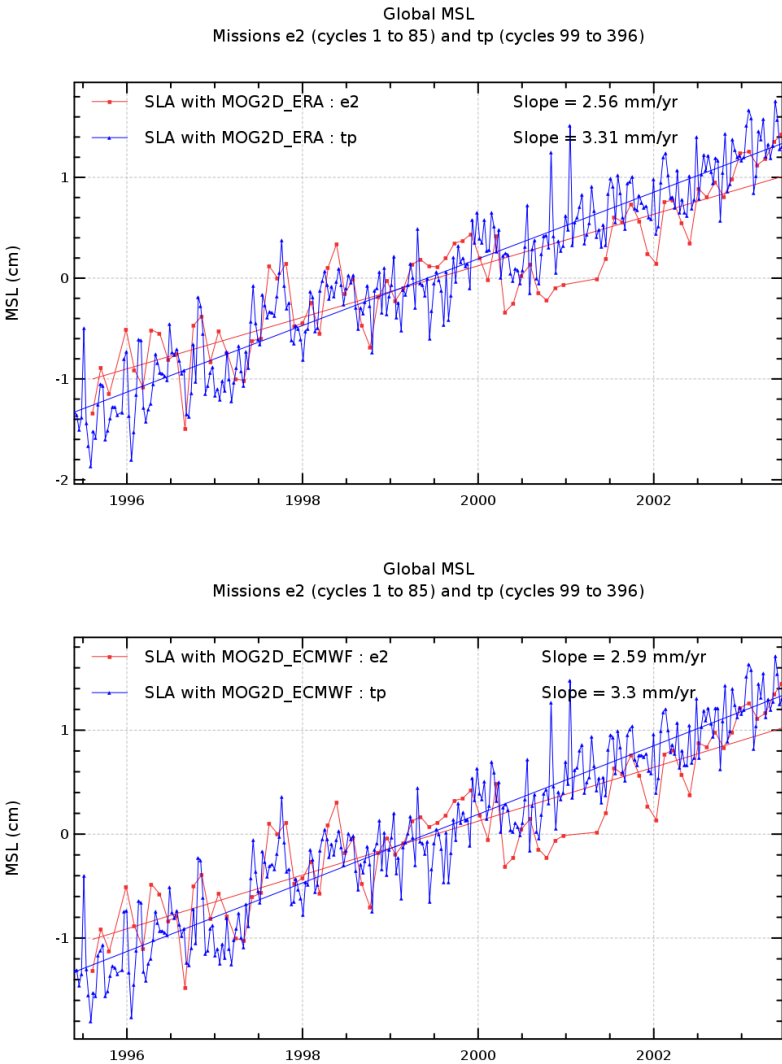
Diagnostic B201_a

Name : Temporal evolution of Sea level Anomaly (SLA) for 2 missions over the same period

Input data : Along track SLA

Description : Temporal evolution of SLA statistics (mean, standard deviation) of 2 or more missions are computed over the same period as longest as possible using successively both components in the SLA calculation. This can be done globally, or separating in ascending and descending or in northern and southern hemisphere. In order to assure comparability, statistics are computed using sea level standard calculation (mean per box of 2x2 and weighted by cosine of latitude for the global mean) limited to 66 latitude.

Diagnostic type : Global multi-mission comparisons



Diagnostic B201_b

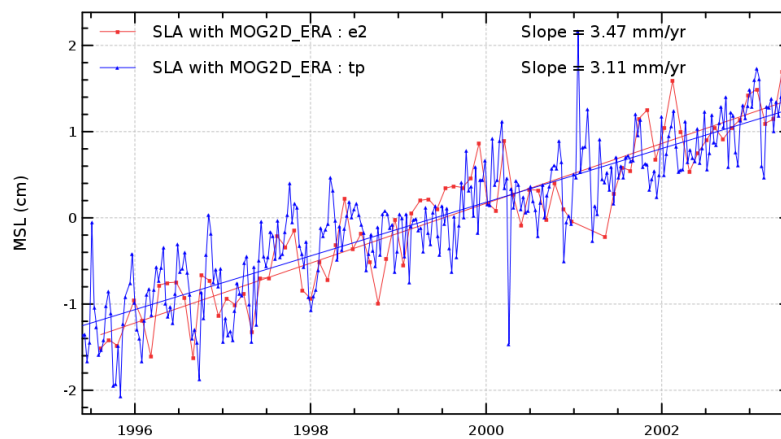
Name : Temporal evolution of Sea level Anomaly (SLA) for 2 missions over the same period

Input data : Along track SLA

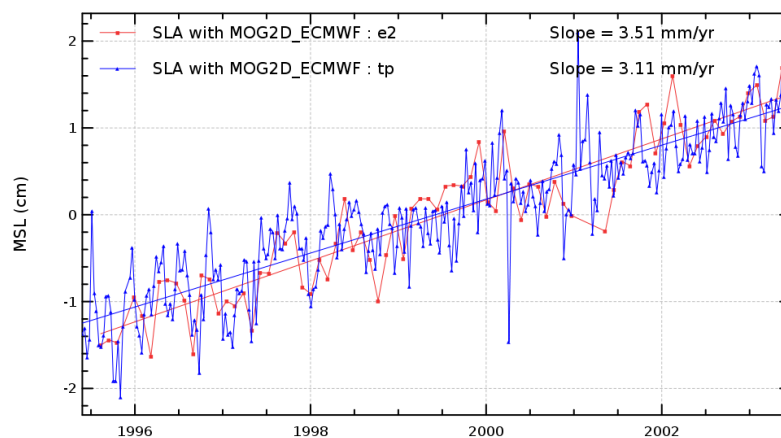
Description : Temporal evolution of SLA statistics (mean, standard deviation) of 2 or more missions are computed over the same period as longest as possible using successively both components in the SLA calculation. This can be done globally, or separating in ascending and descending or in northern and southern hemisphere. In order to assure comparability, statistics are computed using sea level standard calculation (mean per box of 2x2 and weighted by cosine of latitude for the global mean) limited to 66 latitude.

Diagnostic type : Global multi-mission comparisons

Global MSL, selecting even pass numbers
Missions e2 (cycles 1 to 85) and tp (cycles 99 to 396)



Global MSL, selecting even pass numbers
Missions e2 (cycles 1 to 85) and tp (cycles 99 to 396)



Diagnostic B201_c

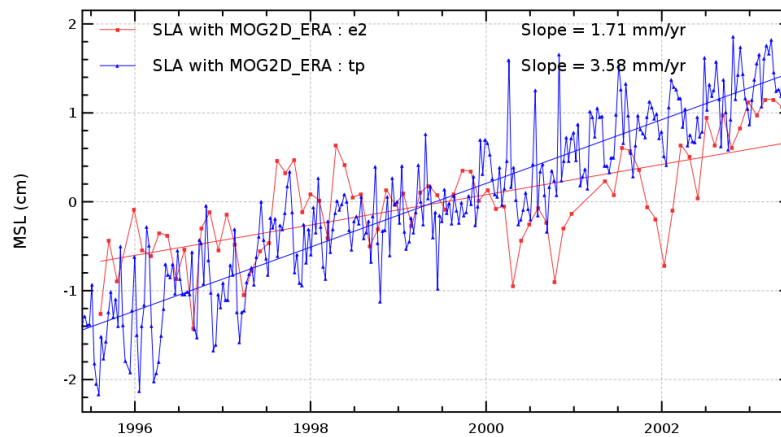
Name : Temporal evolution of Sea level Anomaly (SLA) for 2 missions over the same period

Input data : Along track SLA

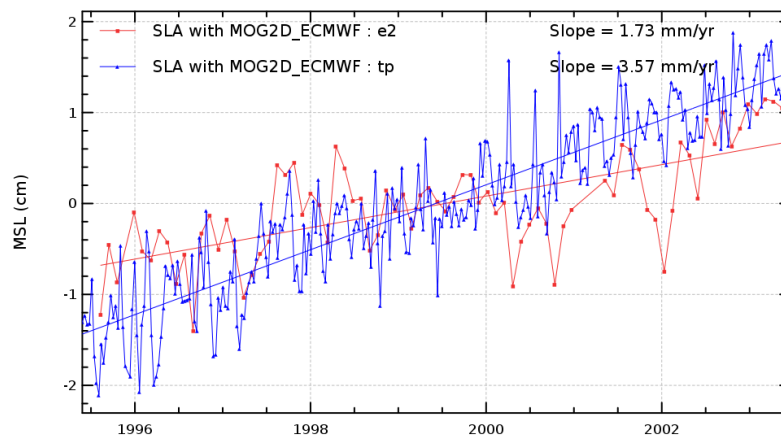
Description : Temporal evolution of SLA statistics (mean, standard deviation) of 2 or more missions are computed over the same period as longest as possible using successively both components in the SLA calculation. This can be done globally, or separating in ascending and descending or in northern and southern hemisphere. In order to assure comparability, statistics are computed using sea level standard calculation (mean per box of 2x2 and weighted by cosine of latitude for the global mean) limited to 66 latitude.

Diagnostic type : Global multi-mission comparisons

Global MSL, selecting odd pass numbers
Missions e2 (cycles 1 to 85) and tp (cycles 99 to 396)



Global MSL, selecting odd pass numbers
Missions e2 (cycles 1 to 85) and tp (cycles 99 to 396)



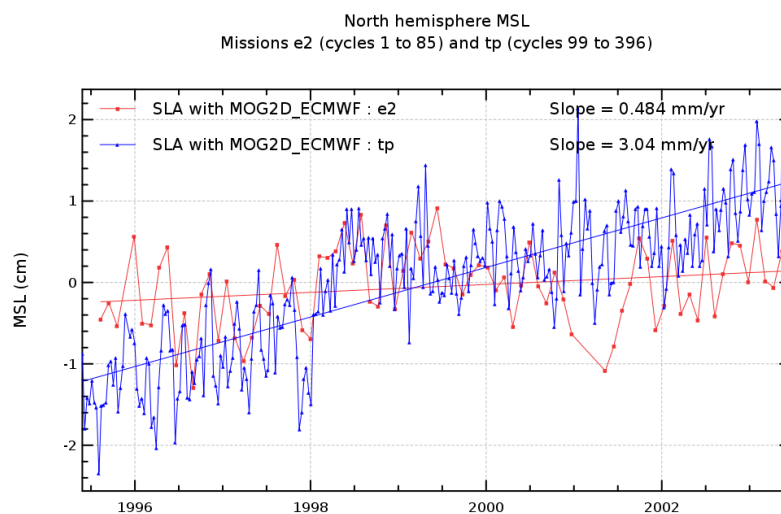
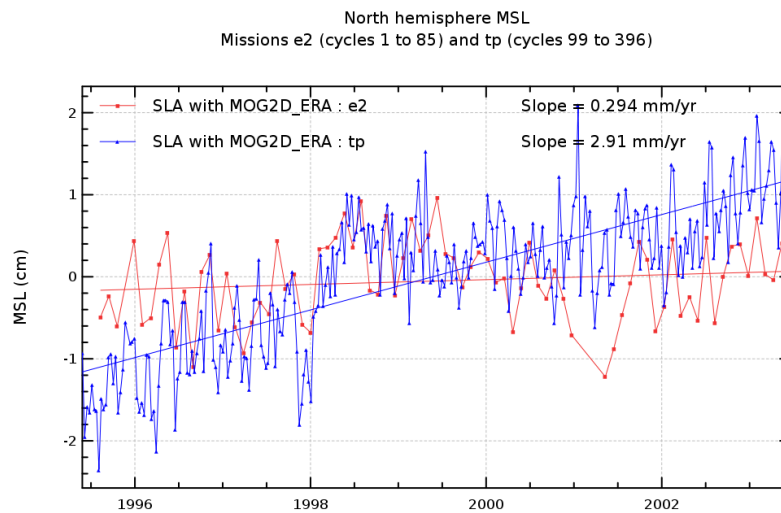
Diagnostic B201_d

Name : Temporal evolution of Sea level Anomaly (SLA) for 2 missions over the same period

Input data : Along track SLA

Description : Temporal evolution of SLA statistics (mean, standard deviation) of 2 or more missions are computed over the same period as longest as possible using successively both components in the SLA calculation. This can be done globally, or separating in ascending and descending or in northern and southern hemisphere. In order to assure comparability, statistics are computed using sea level standard calculation (mean per box of 2x2 and weighted by cosine of latitude for the global mean) limited to 66 latitude.

Diagnostic type : Global multi-mission comparisons



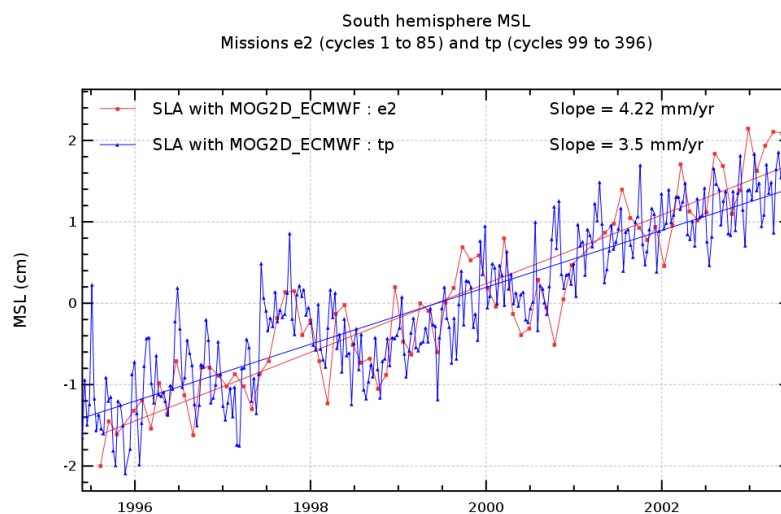
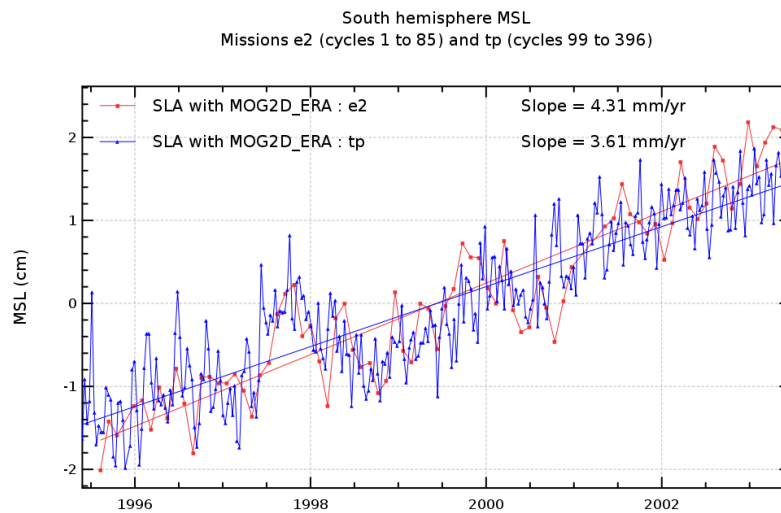
Diagnostic B201_e

Name : Temporal evolution of Sea level Anomaly (SLA) for 2 missions over the same period

Input data : Along track SLA

Description : Temporal evolution of SLA statistics (mean, standard deviation) of 2 or more missions are computed over the same period as longest as possible using successively both components in the SLA calculation. This can be done globally, or separating in ascending and descending or in northern and southern hemisphere. In order to assure comparability, statistics are computed using sea level standard calculation (mean per box of 2x2 and weighted by cosine of latitude for the global mean) limited to 66 latitude.

Diagnostic type : Global multi-mission comparisons



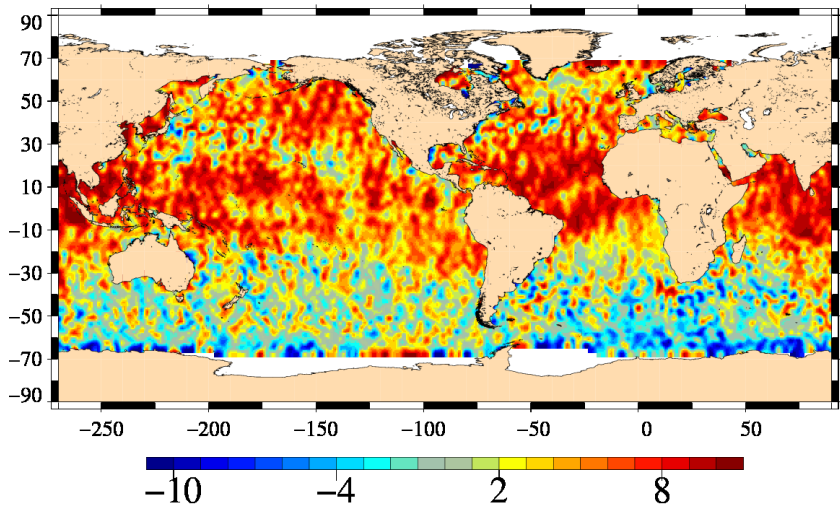
Diagnostic B202_a

Name : Differences between maps of Sea Level Anomaly (SLA) for 2 missions over the same period

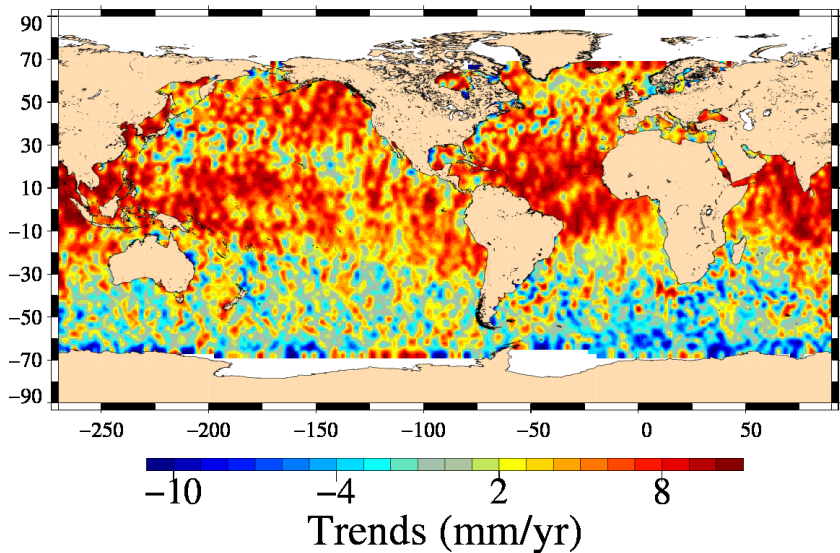
Input data : Along track SLA

Description : The differences between maps of SLA (mean, variance or slope) derived from 2 altimetric missions are computed over the same period (as long as possible) using successively both altimetric components in the SLA calculation. Maps are calculated globally, they can be also calculated separating ascending and descending passes.

SLA with MOG2D_ERA differences : e1 – tp
Missions e1 (cycles 15 to 53) and tp (cycles 5 to 136)



SLA with MOG2D_ECMWF differences : e1 – tp
Missions e1 (cycles 15 to 53) and tp (cycles 5 to 136)



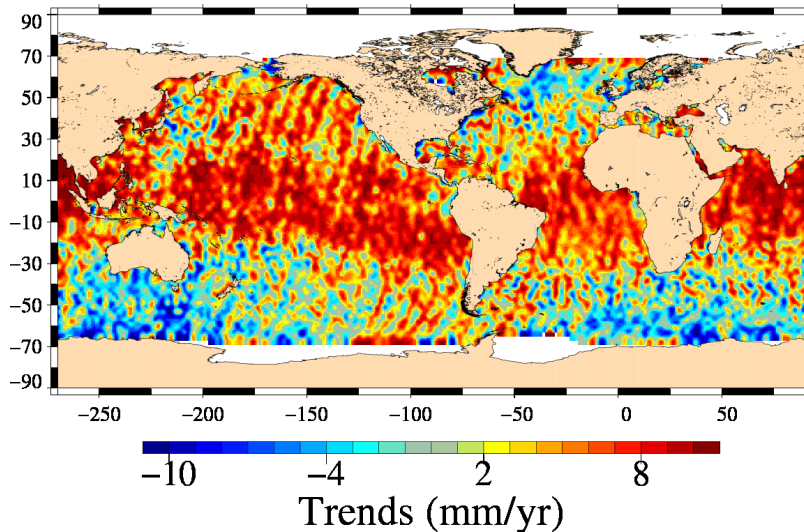
Diagnostic B202_b

Name : Differences between maps of Sea Level Anomaly (SLA) for 2 missions over the same period

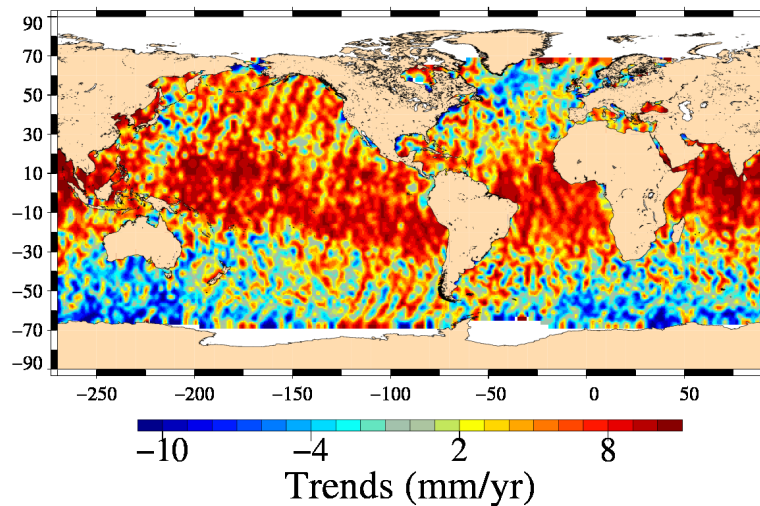
Input data : Along track SLA

Description : The differences between maps of SLA (mean, variance or slope) derived from 2 altimetric missions are computed over the same period (as long as possible) using successively both altimetric components in the SLA calculation. Maps are calculated globally, they can be also calculated separating ascending and descending passes.

SLA with MOG2D_ERA differences : e1 – tp, even pass numbers
Missions e1 (cycles 15 to 53) and tp (cycles 5 to 136)



SLA with MOG2D_ECMWF differences : e1 – tp, even pass numbers
Missions e1 (cycles 15 to 53) and tp (cycles 5 to 136)



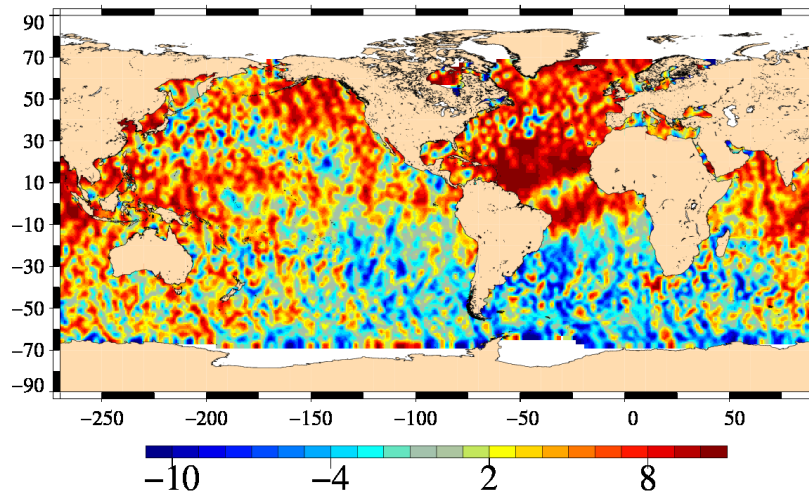
Diagnostic B202_c

Name : Differences between maps of Sea Level Anomaly (SLA) for 2 missions over the same period

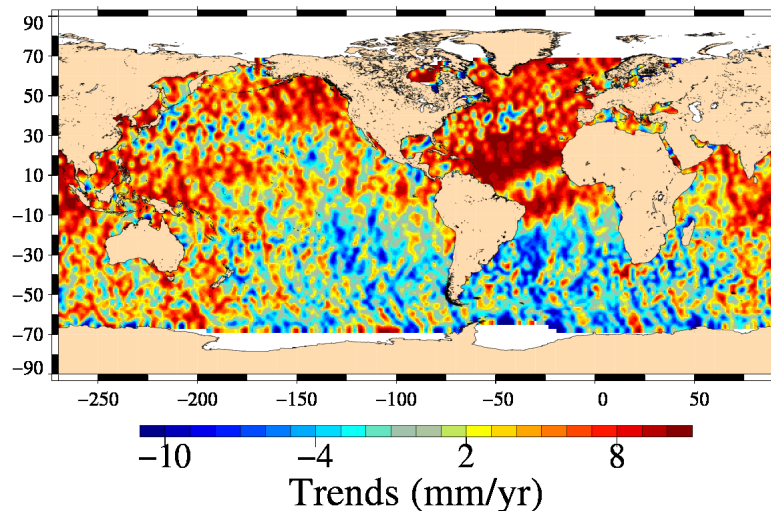
Input data : Along track SLA

Description : The differences between maps of SLA (mean, variance or slope) derived from 2 altimetric missions are computed over the same period (as long as possible) using successively both altimetric components in the SLA calculation. Maps are calculated globally, they can be also calculated separating ascending and descending passes.

SLA with MOG2D_ERA differences : e1 – tp, odd pass numbers
Missions e1 (cycles 15 to 53) and tp (cycles 5 to 136)



Trends (mm/yr)
SLA with MOG2D_ECMWF differences : e1 – tp, odd pass numbers
Missions e1 (cycles 15 to 53) and tp (cycles 5 to 136)



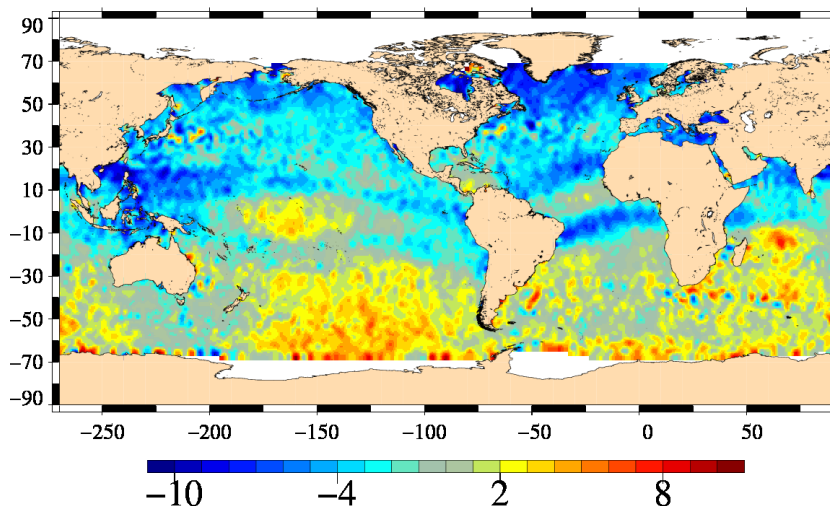
Diagnostic B202_a

Name : Differences between maps of Sea Level Anomaly (SLA) for 2 missions over the same period

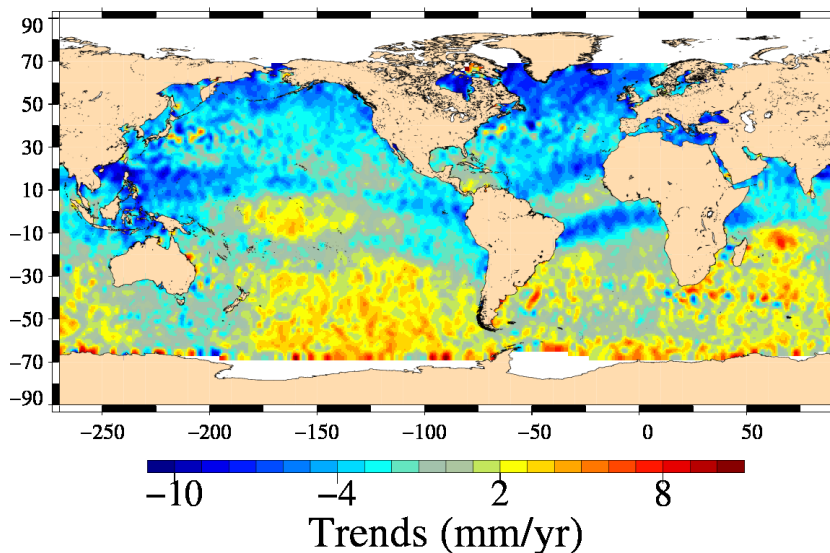
Input data : Along track SLA

Description : The differences between maps of SLA (mean, variance or slope) derived from 2 altimetric missions are computed over the same period (as long as possible) using successively both altimetric components in the SLA calculation. Maps are calculated globally, they can be also calculated separating ascending and descending passes.

SLA with MOG2D_ERA differences : e2 – tp
Missions e2 (cycles 1 to 85) and tp (cycles 99 to 396)



Trends (mm/yr)
SLA with MOG2D_ECMWF differences : e2 – tp
Missions e2 (cycles 1 to 85) and tp (cycles 99 to 396)



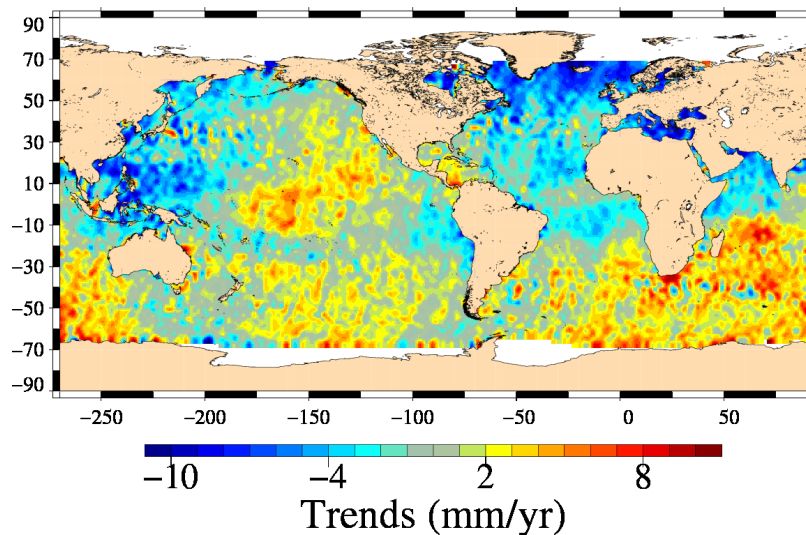
Diagnostic B202_b

Name : Differences between maps of Sea Level Anomaly (SLA) for 2 missions over the same period

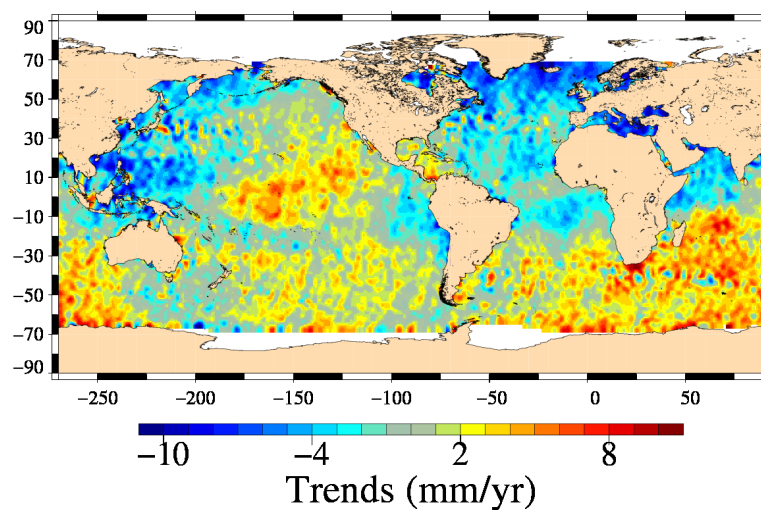
Input data : Along track SLA

Description : The differences between maps of SLA (mean, variance or slope) derived from 2 altimetric missions are computed over the same period (as long as possible) using successively both altimetric components in the SLA calculation. Maps are calculated globally, they can be also calculated separating ascending and descending passes.

SLA with MOG2D_ERA differences : e2 – tp, even pass numbers
Missions e2 (cycles 1 to 85) and tp (cycles 99 to 396)



SLA with MOG2D_ECMWF differences : e2 – tp, even pass numbers
Missions e2 (cycles 1 to 85) and tp (cycles 99 to 396)



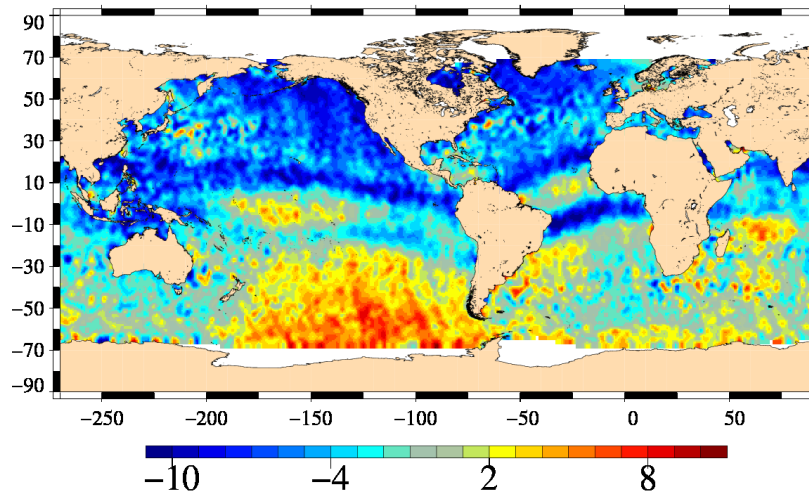
Diagnostic B202_c

Name : Differences between maps of Sea Level Anomaly (SLA) for 2 missions over the same period

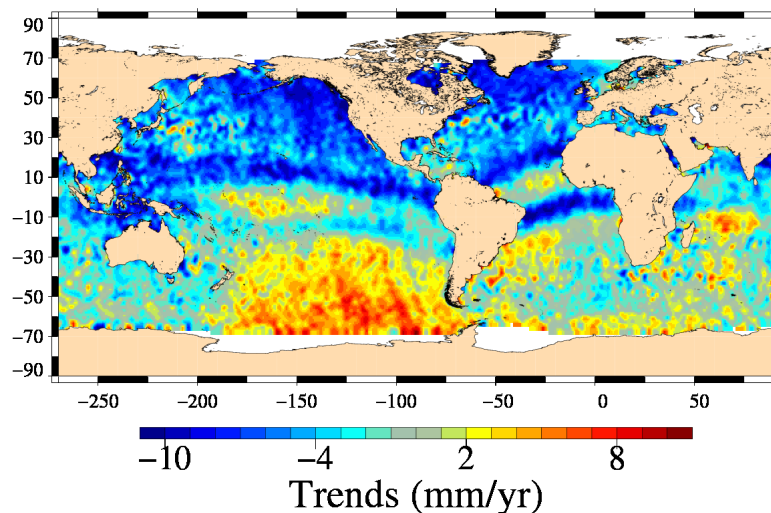
Input data : Along track SLA

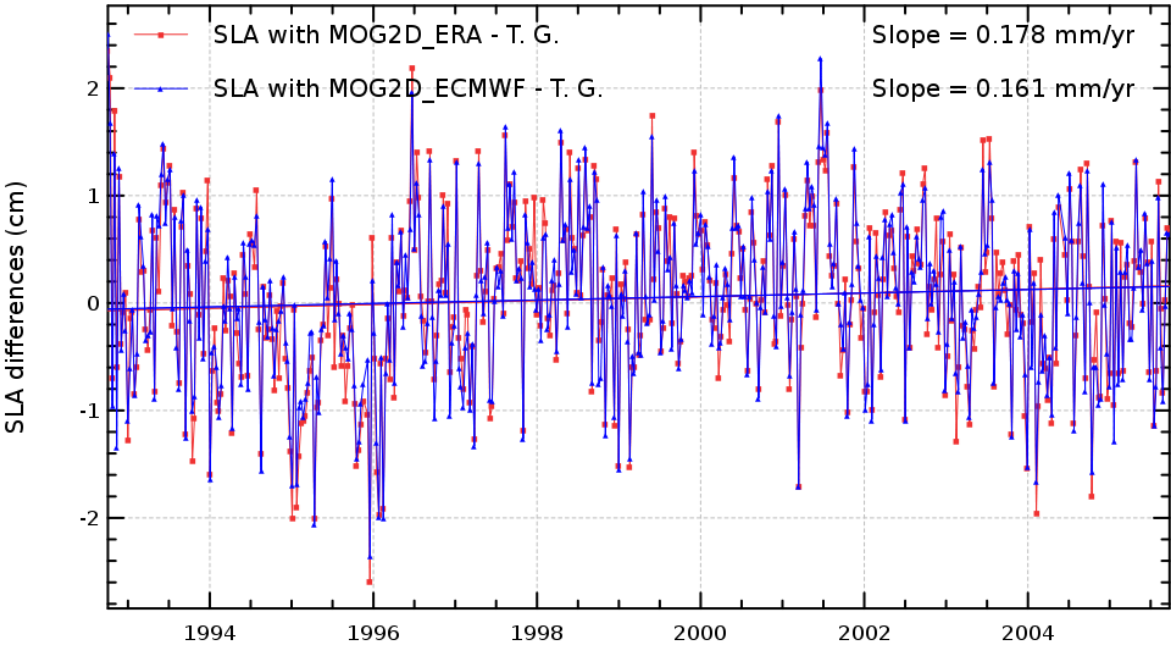
Description : The differences between maps of SLA (mean, variance or slope) derived from 2 altimetric missions are computed over the same period (as long as possible) using successively both altimetric components in the SLA calculation. Maps are calculated globally, they can be also calculated separating ascending and descending passes.

SLA with MOG2D_ERA differences : e2 – tp, odd pass numbers
Missions e2 (cycles 1 to 85) and tp (cycles 99 to 396)



Trends (mm/yr)
SLA with MOG2D_ECMWF differences : e2 – tp, odd pass numbers
Missions e2 (cycles 1 to 85) and tp (cycles 99 to 396)



Diagnostic type : Altimetry and in-situ data comparison	Diagnostic C001 (mission tp)	
	Name : Temporal evolution of SSH differences between tide gauges and altimetry measurements	
	Input data : Tide gauges SSH measurements	
	Description : The temporal evolution of global statistics (mean, variance, slope) of SSH differences between tide gauges and altimeter measurements are calculated from a cyclic way (altimeter repetivity) using successively both altimetric components in SSH calculation. The altimetric and tide gauges data are colocated with criteria of maximum of correlation, and tide gauges used are derived from global networks (GLOSS/CLIVAR, REFMAR).	
	<div>SLA differences : altimetry measurements - tide gauges Mission tp, cycles 1 to 481</div> 	

Diagnostic C002 (mission tp)

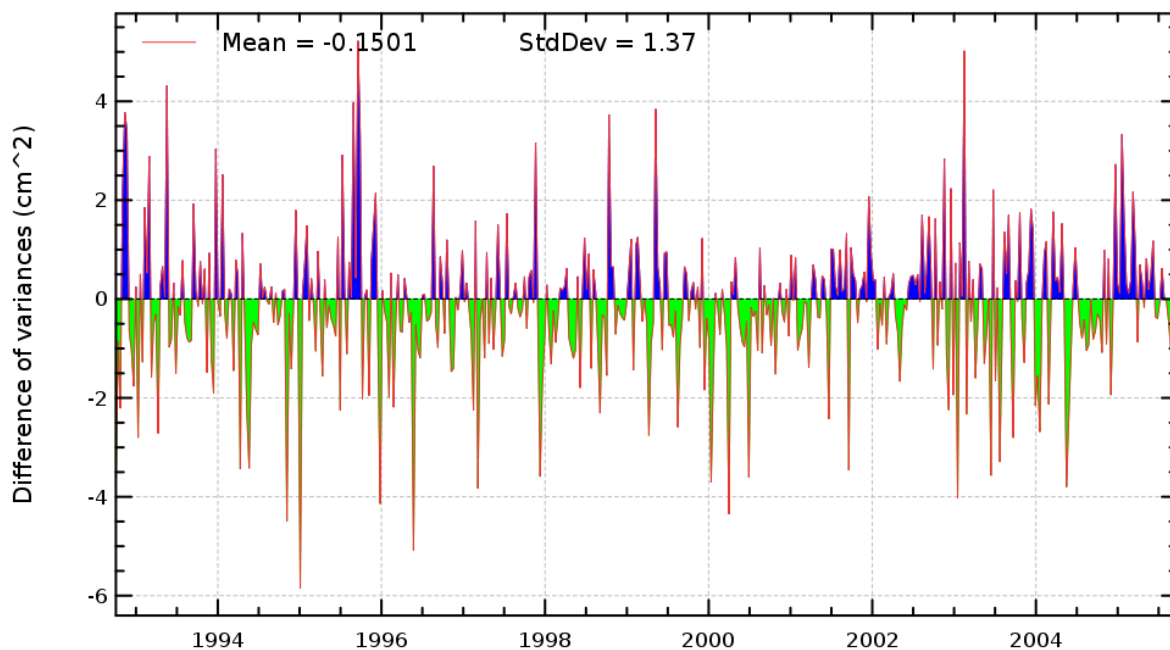
Name : Differences of temporal evolution of SSH differences between tide gauges and altimetry measurements

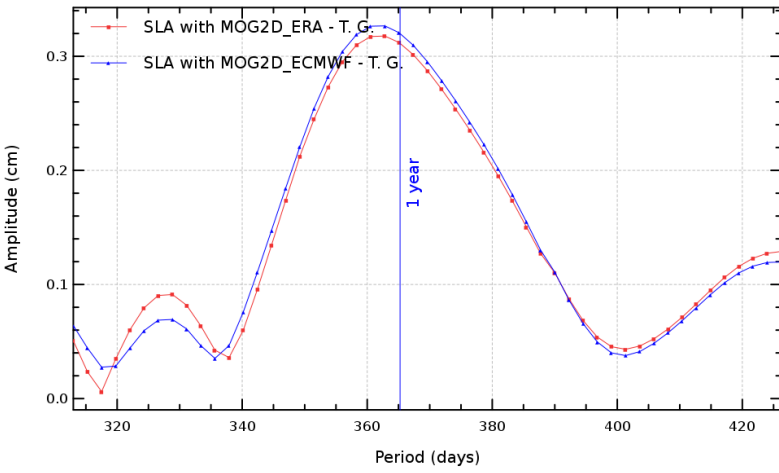
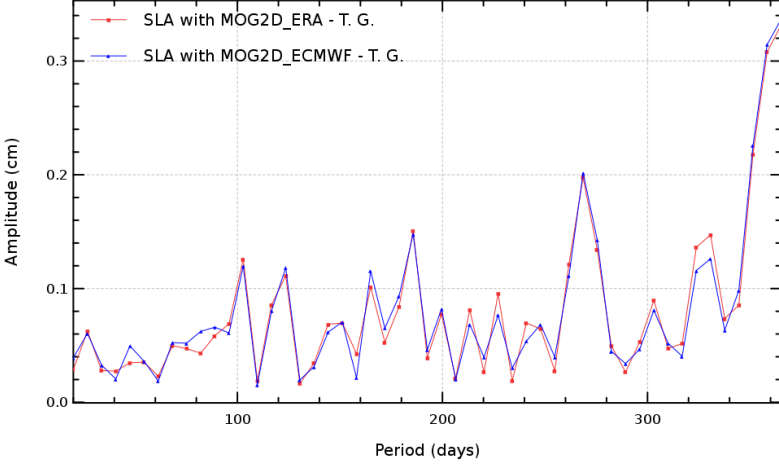
Input data : Tide gauges SSH measurements

Description : The difference between temporal evolution of global statistics of differences between tide gauge and altimeter data differences are calculated from a cyclic way (altimeter repetivity, daily, weekly, monthly) using successively both altimetric components in altimetric SSH calculation. The altimetric and tide gauges data are collocated with criteria of maximum of correlation, and tide gauges used are derived from global networks as GLOSS/CLIVAR.

Diagnostic type : Altimetry and in-situ data comparison

Difference of variances : $\text{VAR}(\text{SLA with MOG2D_ERA} - \text{T. G.}) - \text{VAR}(\text{SLA with MOG2D_ECMWF} - \text{T. G.})$
Mission tp, cycles 1 to 481



Diagnostic C003 (mission tp)	
Name : Periodogram derived from temporal evolution of SSH differences between tide gauges and altimetry	
Input data : Tide gauges SSH measurements	
Description : The periodogram derived from temporal evolution of altimetric and tide gauges SSH differences is calculated using successively both altimetric components in the altimetric SSH. The periodogram is calculated from the mean or variance statistics and it can be displayed for all the whole time period or a dedicated one	
<div>Periodogram of SLA differences : altimetry measurements - tide gauges (ref. period = 1 year) Mission tp, cycles 1 to 481</div>  <div>Periodogram of SLA differences : altimetry measurements - tide gauges (period = [0, 1 year]) Mission tp, cycles 1 to 481</div> 	

Diagnostic C004 (mission tp)

Name : Histograms of differences between tide gauges and altimeter SSH differences

Input data : Tide gauges SSH measurements

Description : The difference of histograms between altimeter and tide gauge SSH differences is computed from the elementary statistics (mean, variance) at each tide gauge using successively both altimetric components in the altimetry SSH.

Diagnostic type : Altimetry and in-situ data comparison

ogram of the difference of variances : $\text{VAR}(\text{SLA with MOG2D_ERA} - \text{T. G.}) - \text{VAR}(\text{SLA with MOG2D_ECMV})$
Mission tp, cycles 1 to 481

