

Comparison of instrumental corrections between CCI and IPF (RX_DEL + PTR_DELAY)

Study variable	RX_and_PTR_CCI
Reference variable	RX_and_PTR_IPF
Missions	Envisat (<i>en</i>), Jason-1 (<i>j1</i>)
Period	[19265.898824964341, 21890.898723935312]

Creation date : 2011/10/30

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Study overview

In this study, all instrumental corrections developed in the frame of sea-level CCI project are compared to the IPF data with the CMA USO correction to observe the impact of the CCI improvements on the ENVISAT sea surface height (SSH) in Ku-Band.

The impact of using these instrumental corrections on the SSH calculation has been analyzed for ENVISAT mission from October 2002 (cycle 10) to December 2009 (Cycle 84).

The effects of the Rx Del (USO correction) and the PTR delay have already been studied in two separate RRDPs. The aim of this RRDP is to quantify the improvements of all the new instrumental corrections provided by the CCI. This study shows the importance of the instrumental corrections on the measure of the sea surface height.

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

Diagnostic A001 (mission en)	
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 RX_and_PTR_CCI - RX_and_PTR_IPF Mission en, cycles 10 to 84</div><div><div><div>20406080</div><div>Mean = -550.1Slope = -0.482 mm/yr</div><div><div>-549.8</div><div>-550.0</div><div>-550.2</div><div>-550.4</div><div>-550.6</div></div><div><div>2004</div><div>2006</div><div>2008</div></div></div></div></div><div><div><div>Standard deviation of RX_and_PTR_CCI - RX_and_PTR_IPF Mission en, cycles 10 to 84</div><div><div><div>20406080</div><div>Mean = 0.4058</div><div><div>3</div><div>2</div><div>1</div><div>0</div></div><div><div>2004</div><div>2006</div><div>2008</div></div></div></div></div></div></div>	

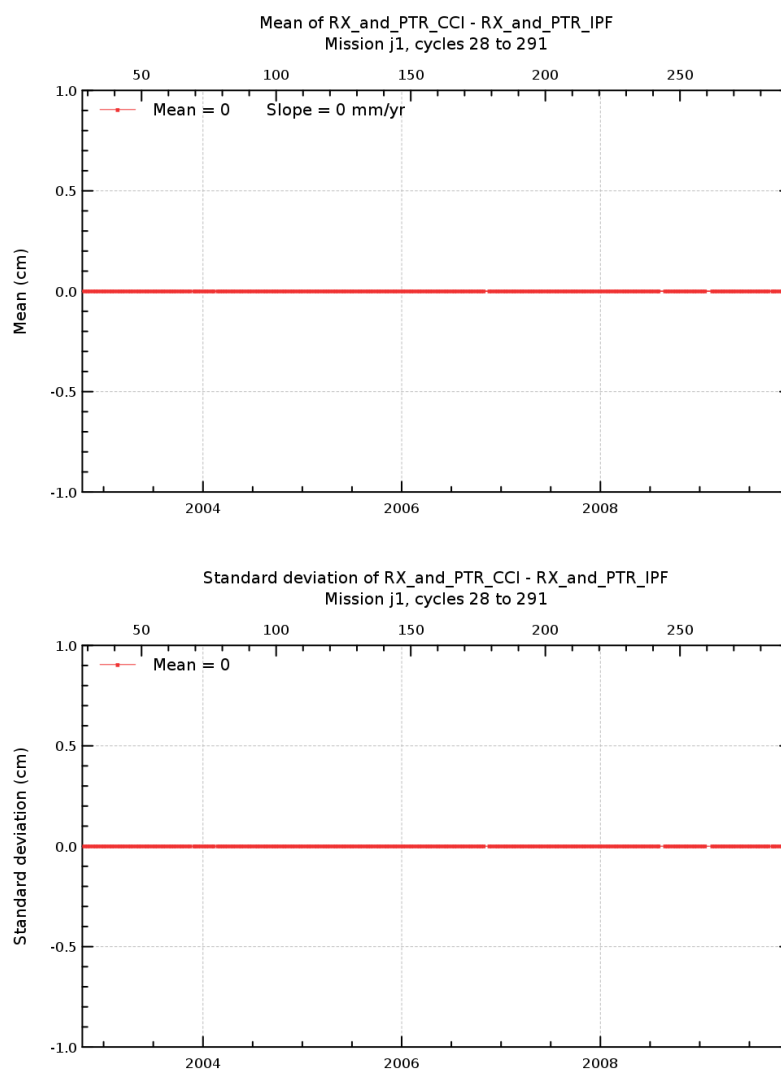
Diagnostic A001 (mission j1)

Name : Temporal evolution of differences between both altimetric components

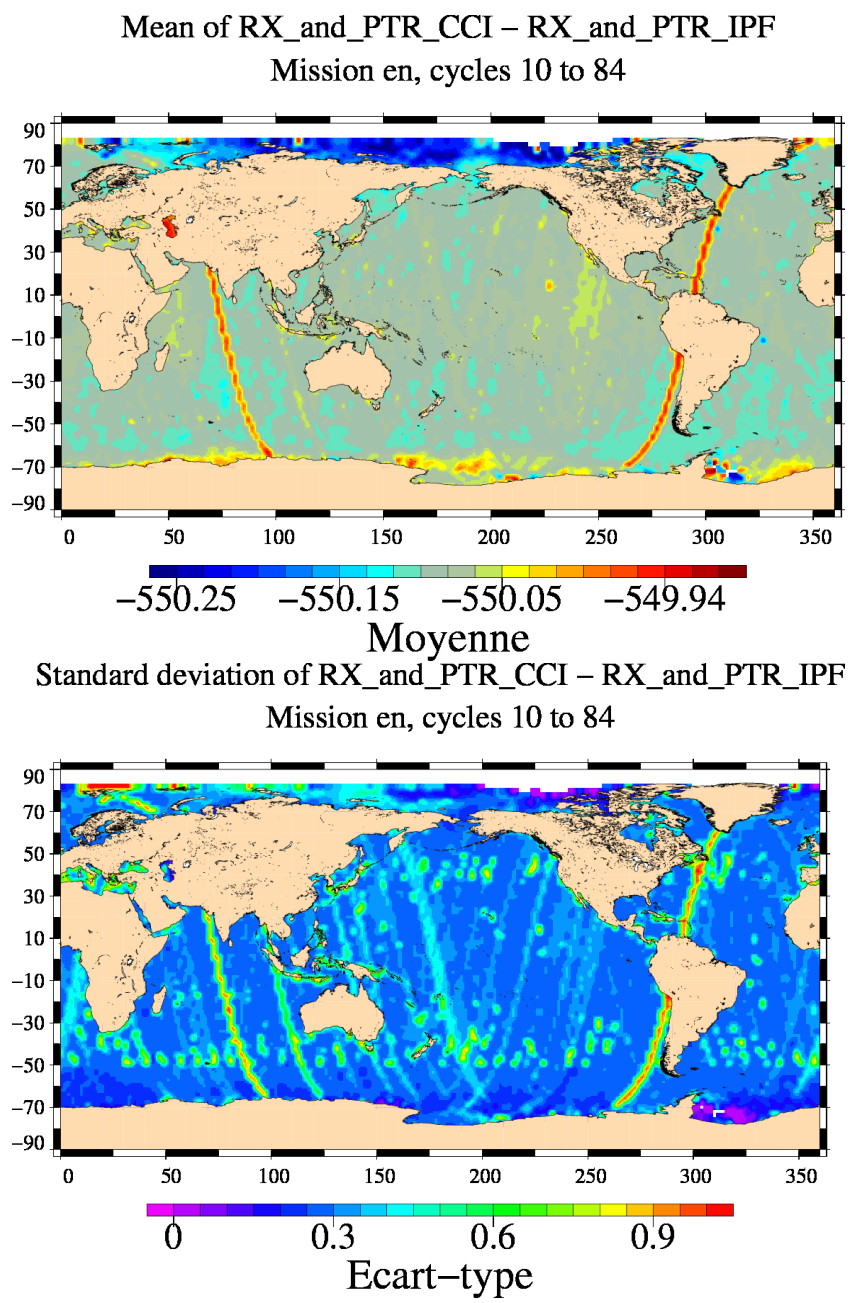
Input data : Along-track altimetric components

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 A002 (mission en)
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.



Diagnostic A002 (mission j1)

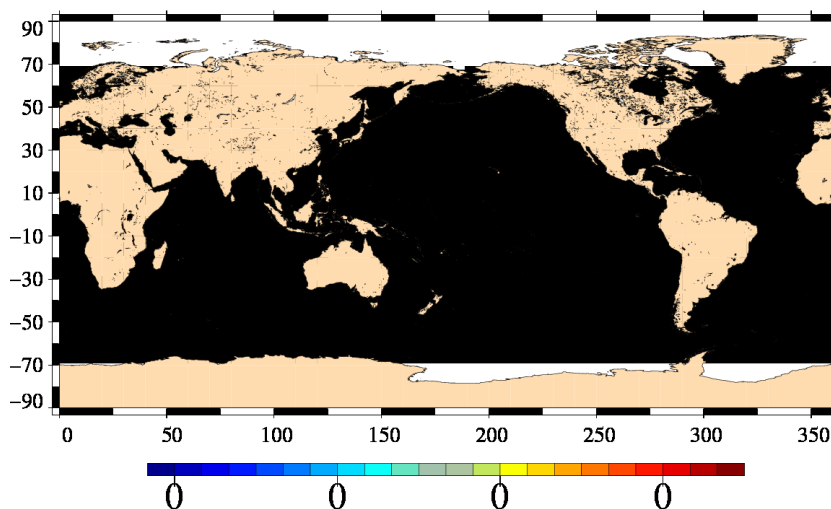
Name : Map of differences between both altimetric components over all the period

Input data : Along-track altimetric components

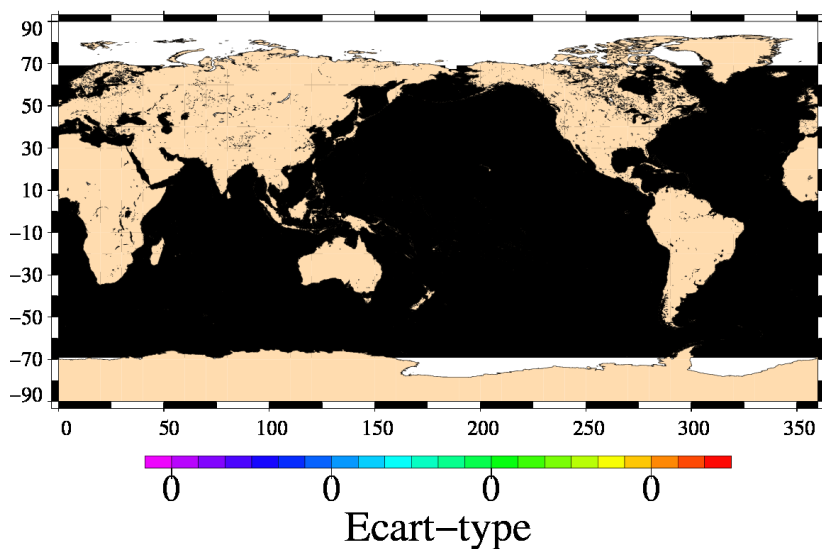
Description : The map of global statistics (mean, standard deviation) of differences between 2 different standards of a same altimetric component (sea surface height correction, altimeter parameter, orbit) are calculated over a given period which is the longer as possible to have obtain reliable statically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

Diagnostic type : Global internal analyses

Mean of RX_and_PTR_CCI – RX_and_PTR_IPF
Mission j1, cycles 28 to 291



Moyenne
Standard deviation of RX_and_PTR_CCI – RX_and_PTR_IPF
Mission j1, cycles 28 to 291



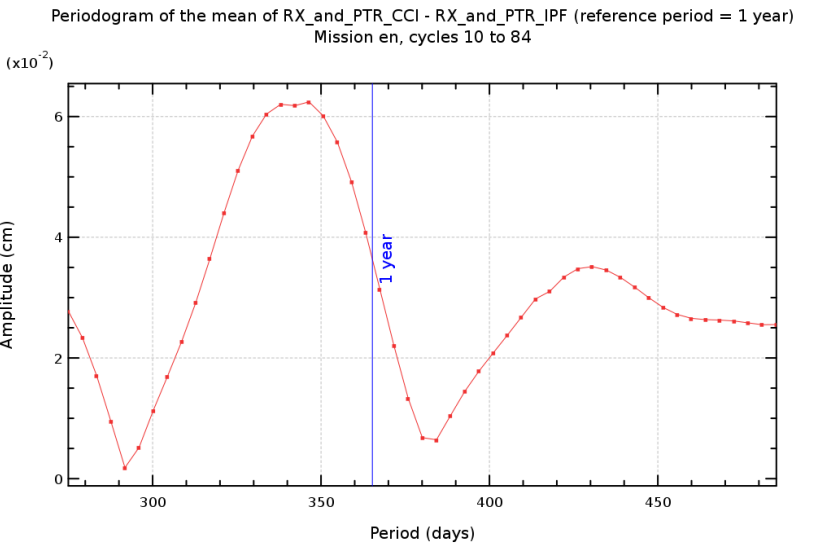
Ecart-type

Diagnostic A003_a (mission en)

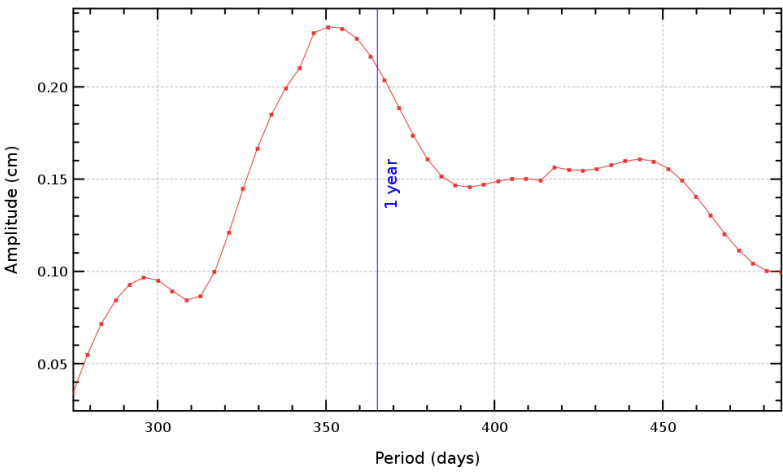
Name : Periodogram derived from temporal evolution of altimetric component differences

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 standard deviation of RX_and_PTR_CCI - RX_and_PTR_IPF (reference period = 1 year)
Mission en, cycles 10 to 84



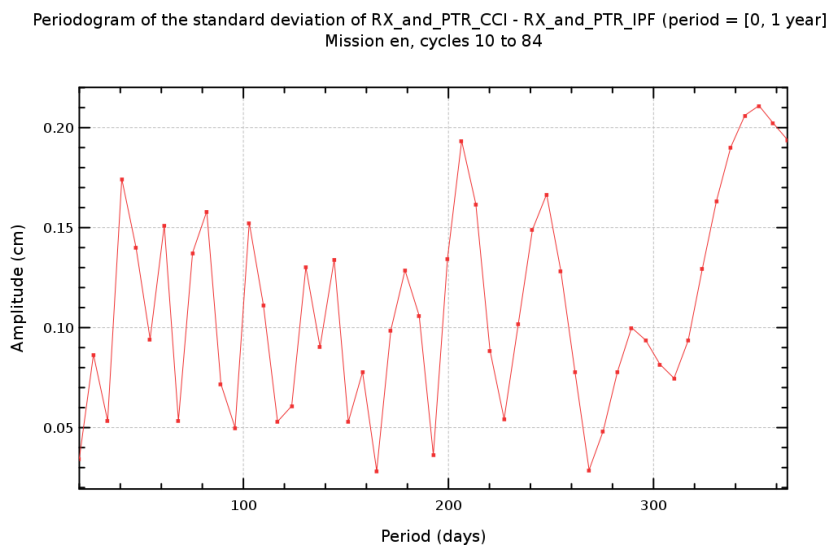
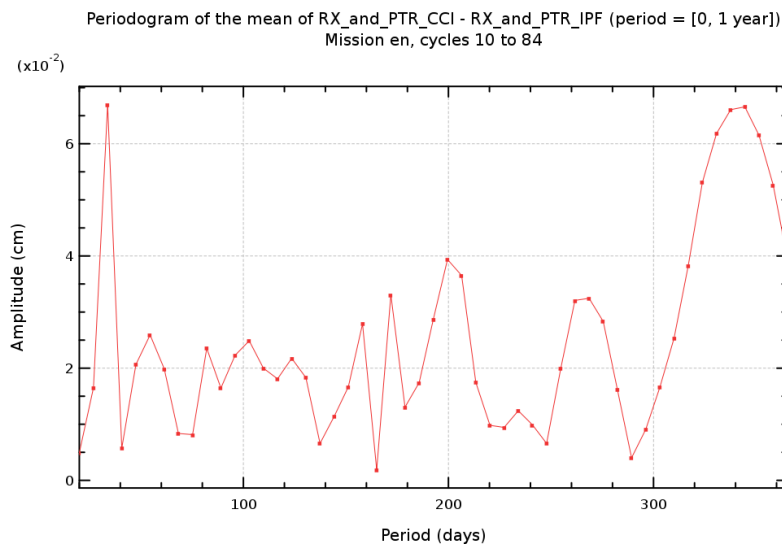
Diagnostic A003_b (mission en)

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 j1)

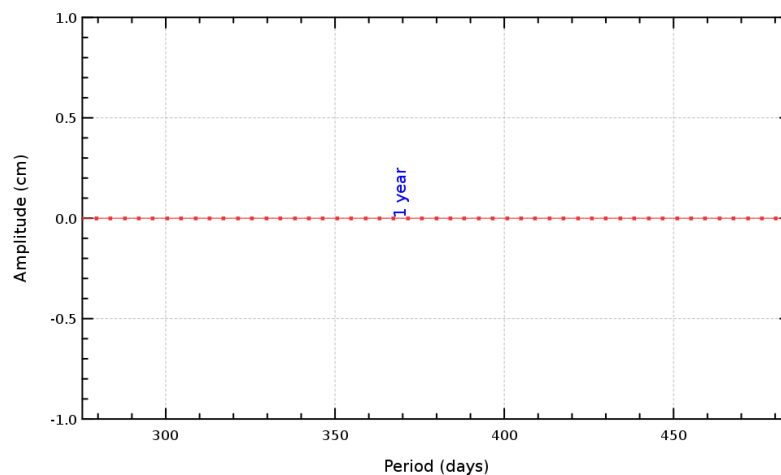
Name : Periodogram derived from temporal evolution of altimetric component differences

Input data : Along-track altimetric components

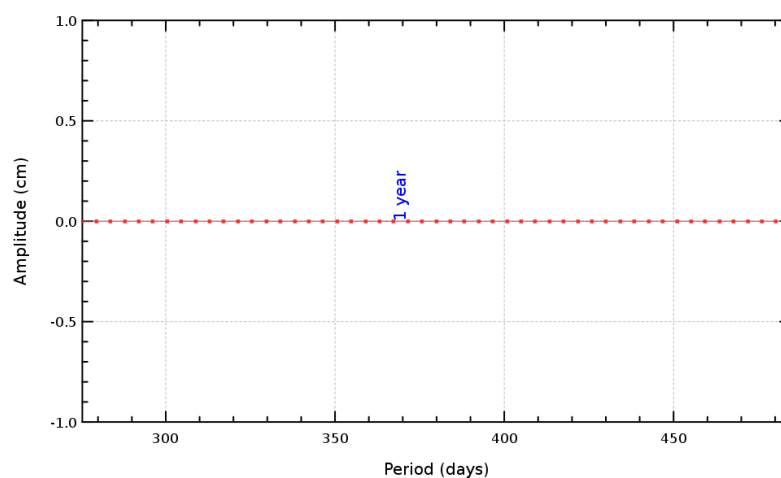
Description : The periodogram derived from temporal and global altimetric component differences is calculated from cycle by cycle monitoring of altimetric component differences (derived from diagnostic A001). It is calculated from the mean or the variance differences. The Periodogram can be calculated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

Diagnostic type : Global internal analyses

Periodogram of the mean of RX_and_PTR_CCI - RX_and_PTR_IPF (reference period = 1 year)
Mission j1, cycles 28 to 291



Periodogram of the standard deviation of RX_and_PTR_CCI - RX_and_PTR_IPF (reference period = 1 year)
Mission j1, cycles 28 to 291



Diagnostic A003_b (mission j1)

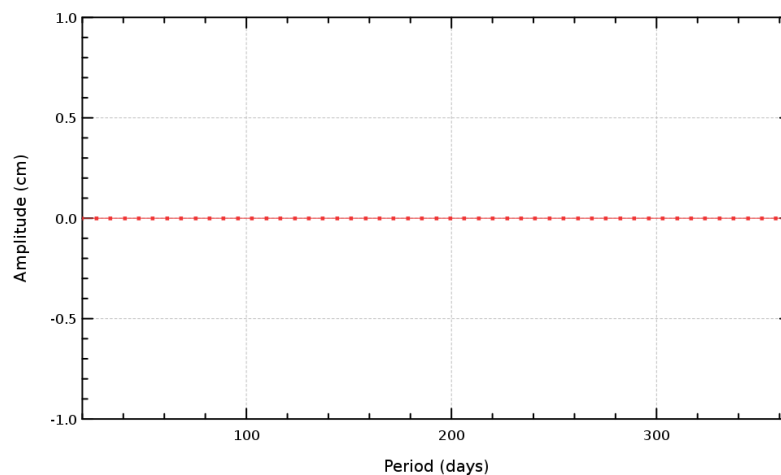
Name : Periodogram derived from temporal evolution of altimetric component differences

Input data : Along-track altimetric components

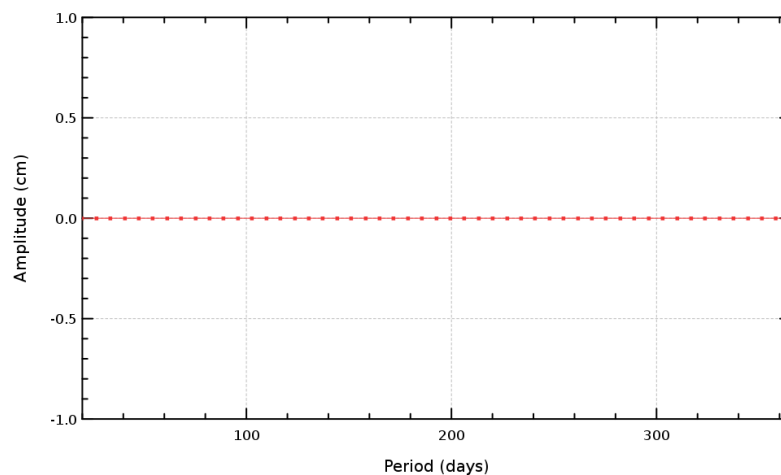
Description : The periodogram derived from temporal and global altimetric component differences is calculated from cycle by cycle monitoring of altimetric component differences (derived from diagnostic A001). It is calculated from the mean or the variance differences. The Periodogram can be calculated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

Diagnostic type : Global internal analyses

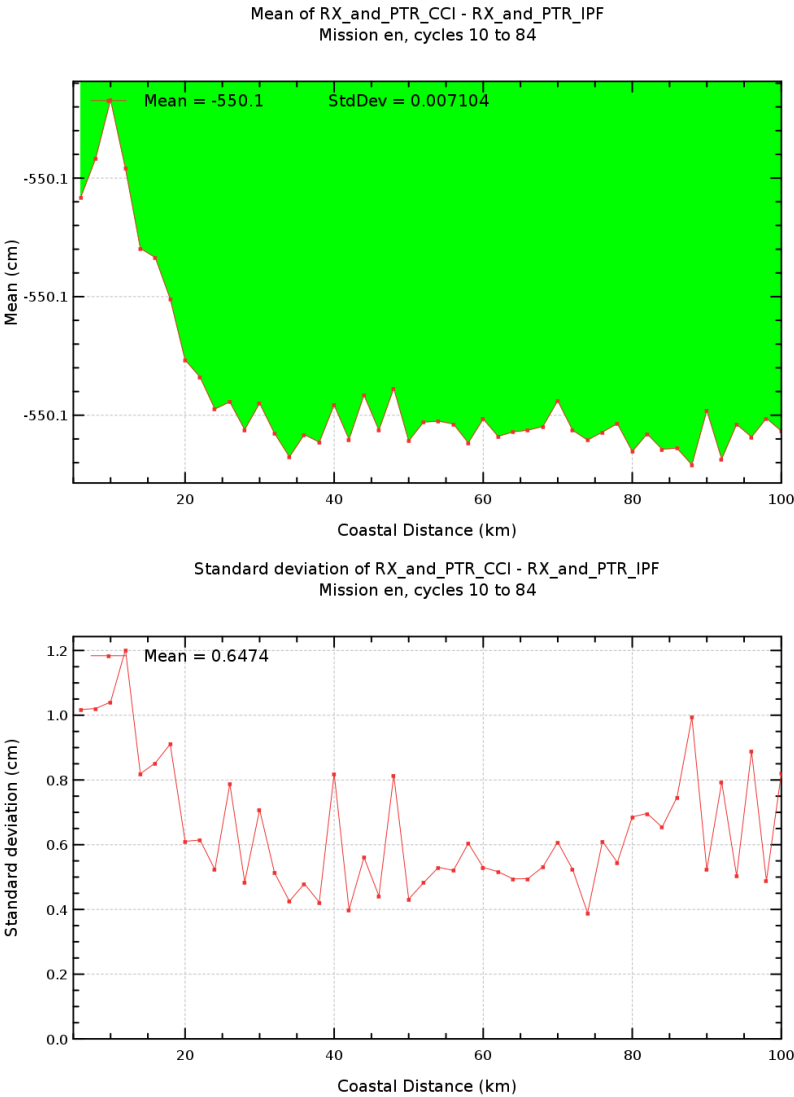
Periodogram of the mean of RX_and_PTR_CCI - RX_and_PTR_IPF (period = [0, 1 year])
Mission j1, cycles 28 to 291



Periodogram of the standard deviation of RX_and_PTR_CCI - RX_and_PTR_IPF (period = [0, 1 year])
Mission j1, cycles 28 to 291



Diagnostic A004 (mission en)	
Name : Altimetric component differences versus coastal distances	
Input data : Along-track altimetric components	
Description : Mean and standard deviation of the differences between 2 different standards of a same altimetric component (sea surface height correction, altimeter parameter, orbit) are computed and plotted in function of coastal distances between 0 and 100 km.	



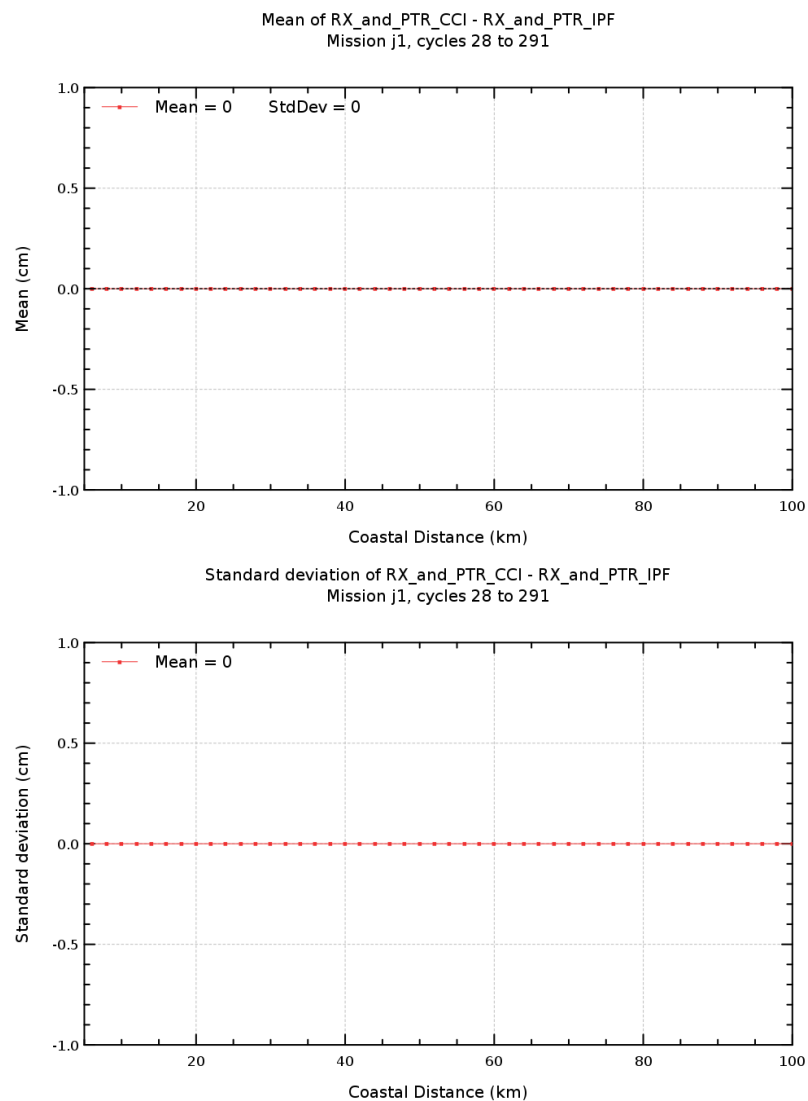
Diagnostic A004 (mission j1)

Name : Altimetric component differences versus coastal distances

Input data : Along-track altimetric components

Description : Mean and standard deviation of the differences between 2 different standards of a same altimetric component (sea surface height correction, altimeter parameter, orbit) are computed and plotted in function of coastal distances between 0 and 100 km.

Diagnostic type : Global internal analyses



Diagnostic A101 (mission en)	
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</div><div>Mission en, cycles 10 to 84</div><div><div><div>2004</div><div>2006</div><div>2008</div></div><div><div>SSH with RX_and_PTR_CCI</div><div>SSH with RX_and_PTR_IPF</div></div><div>Mean = -0.1801</div><div>Mean = -0.1414</div></div><div><div>Standard deviations of SSH crossovers</div><div>Mission en, cycles 10 to 84</div><div><div><div>2004</div><div>2006</div><div>2008</div></div><div><div>SSH with RX_and_PTR_CCI</div><div>SSH with RX_and_PTR_IPF</div></div><div>Mean = 7.267</div><div>Mean = 7.271</div></div></div></div></div>	

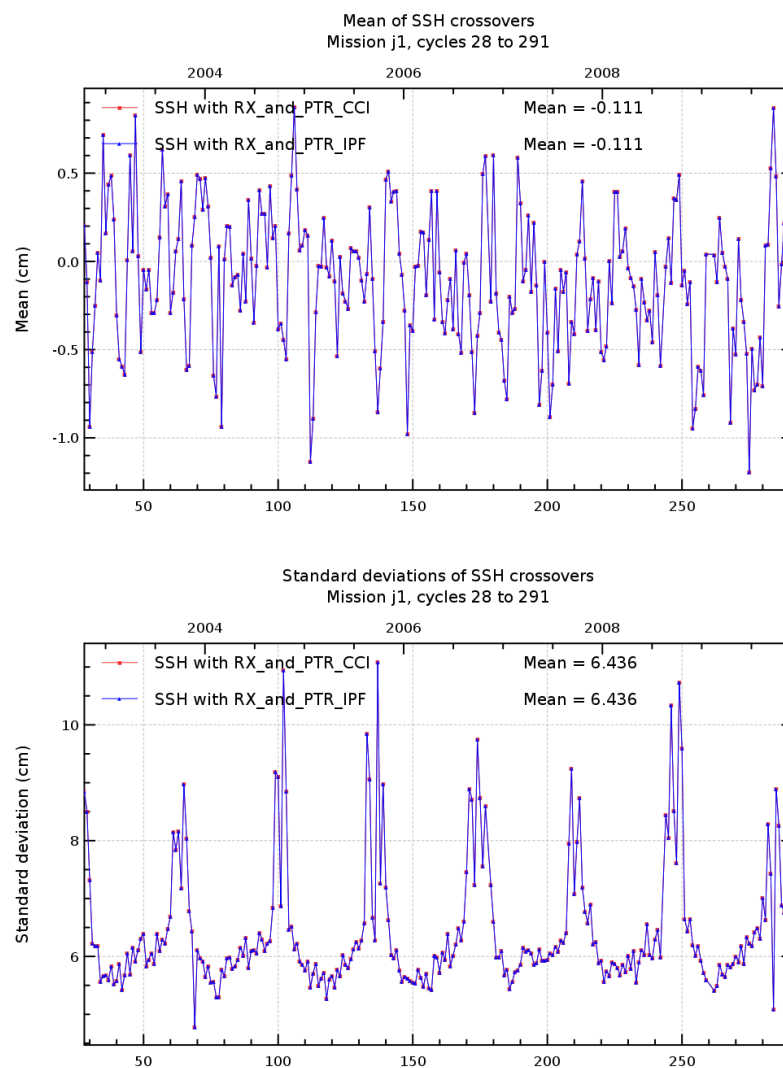
Diagnostic A101 (mission j1)

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



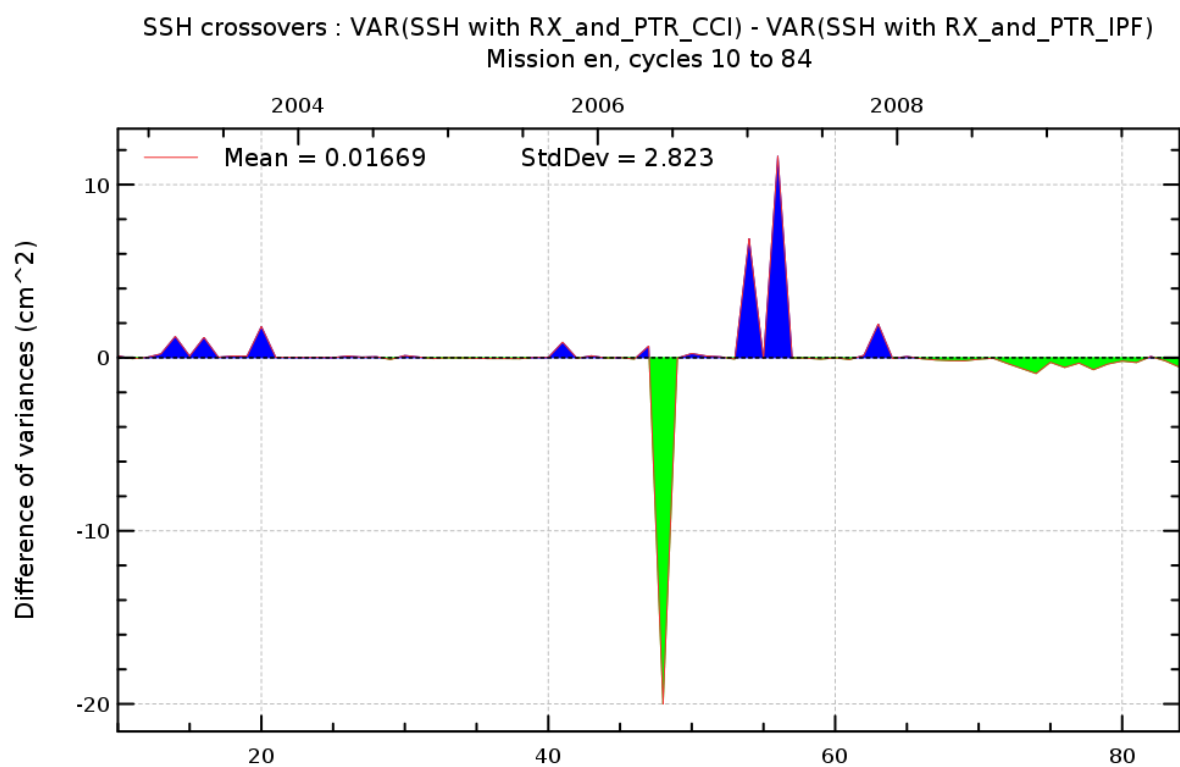
Diagnostic A102 (mission en)

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



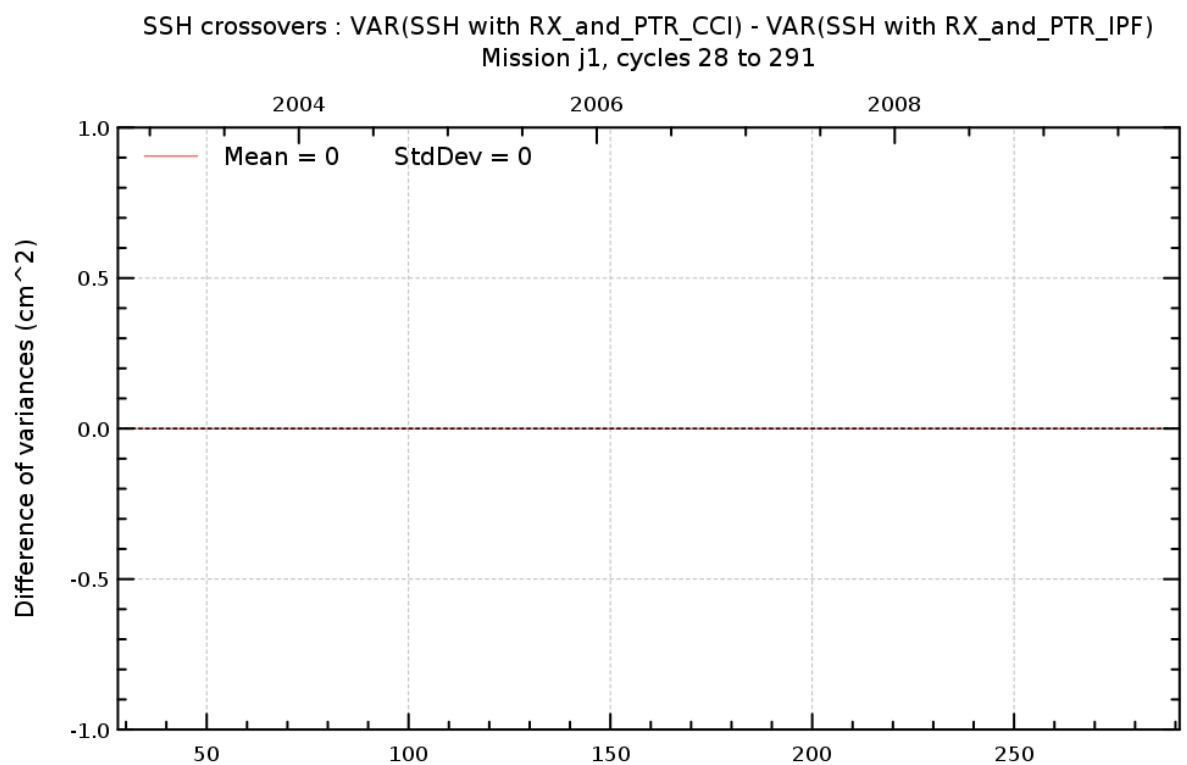
Diagnostic A102 (mission j1)

Name : Differences between temporal evolution of SSH crossovers

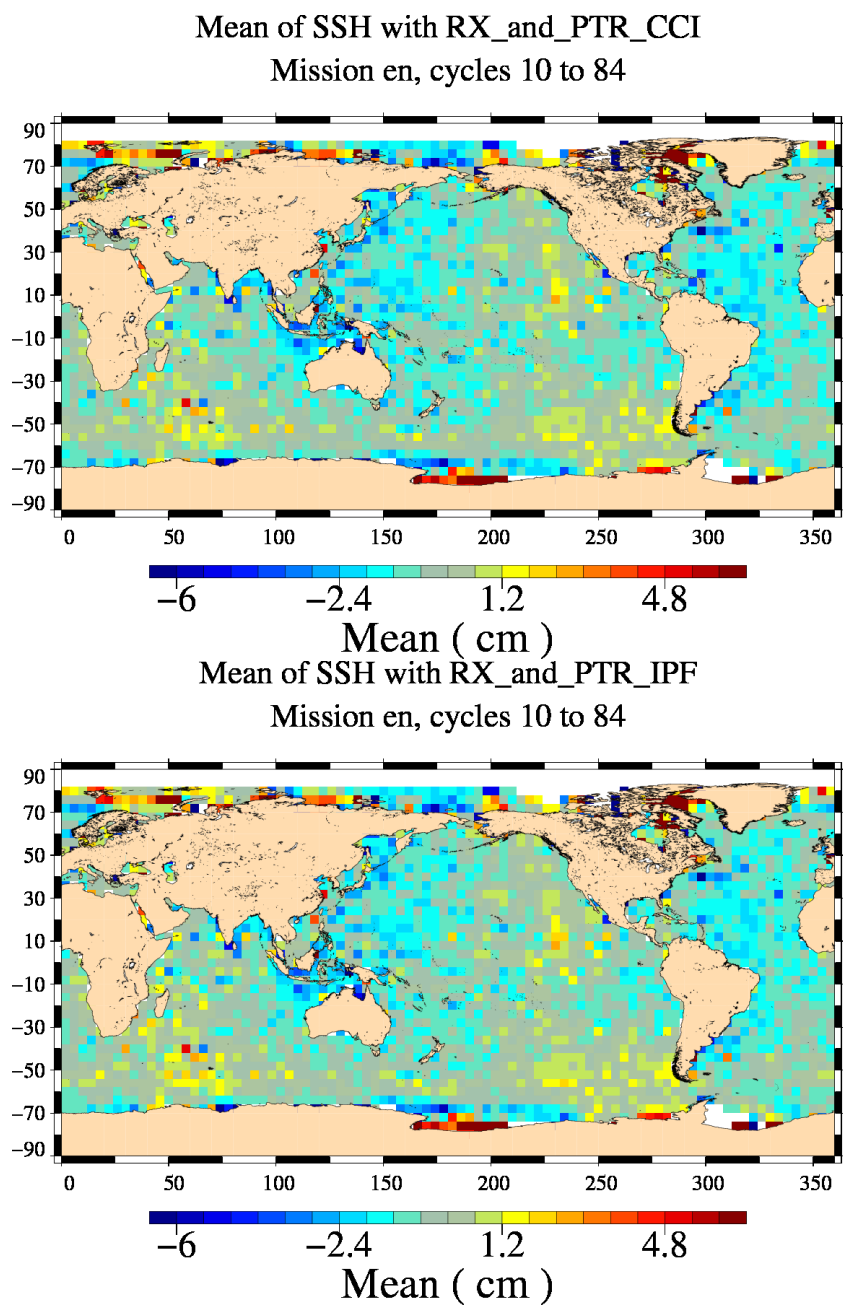
Input data : Sea Surface Height (SSH) crossovers

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 en)	
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 A103 (mission j1)

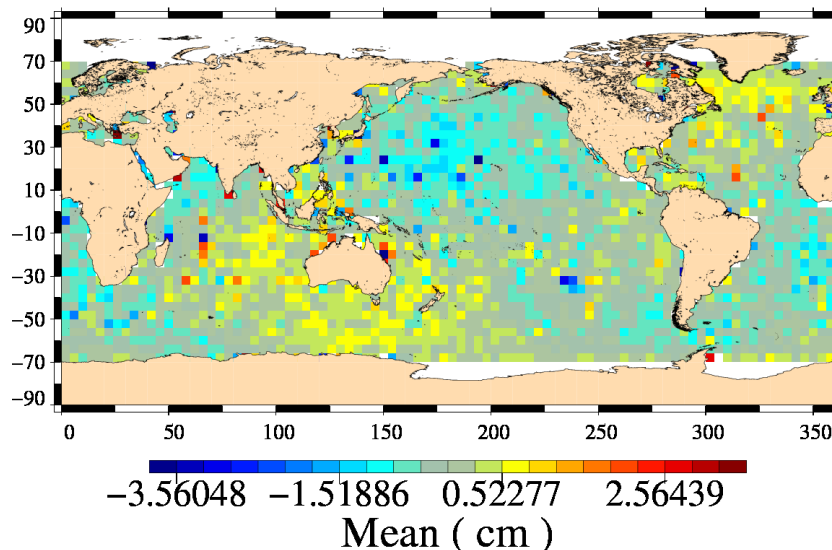
Name : Map of SSH crossovers

Input data : Sea Surface Height (SSH) crossovers

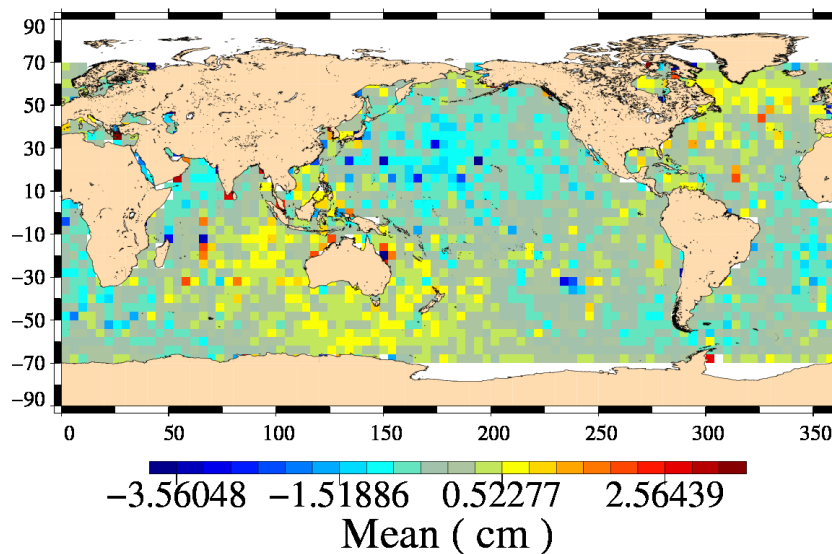
Description : The differences between maps of SSH crossovers differences (mean, variance) are calculated using successively both altimetric components in the SSH calculation. SSH crossovers are the differences between ascending and descending passes for time differences between both passes lower than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

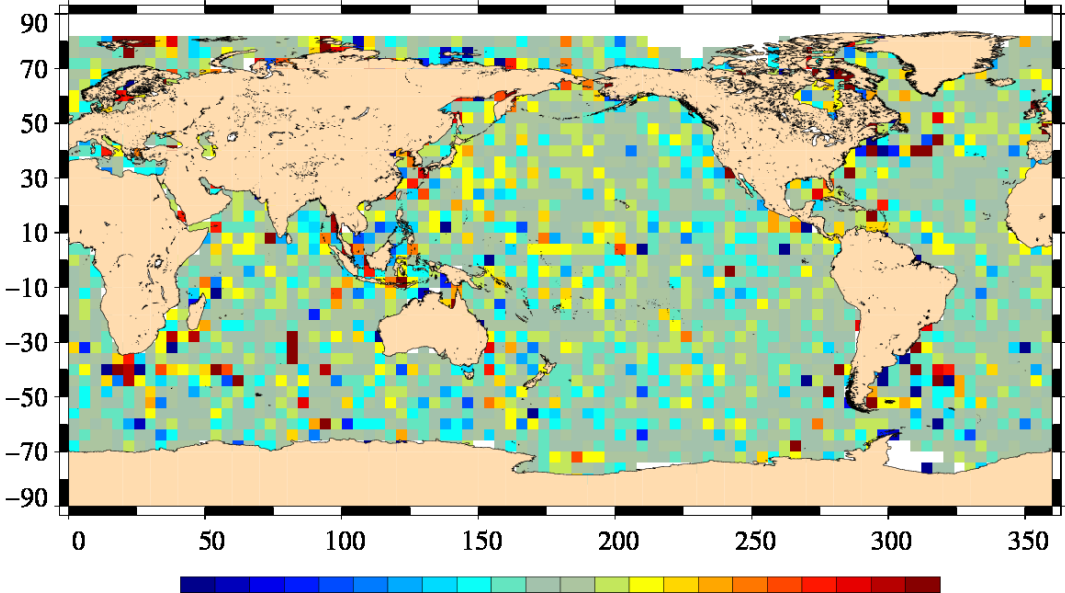
Diagnostic type : Global internal analyses

Mean of SSH with RX_and_PTR_CCI
Mission j1, cycles 28 to 291



Mean (cm)
Mean of SSH with RX_and_PTR_IPF
Mission j1, cycles 28 to 291



Diagnostic type : Global internal analyses	Diagnostic A104 (mission en)	
	Name : Differences between maps of SSH crossovers	
	Input data : Sea Surface Height (SSH) crossovers	
	<p>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).</p>	
	<p>VAR(SSH with RX_and_PTR_CCI) – VAR(SSH with RX_and_PTR_IPF) Mission en, cycles 10 to 84</p>  <p>SSH crossovers : difference of variances (cm^2)</p>	

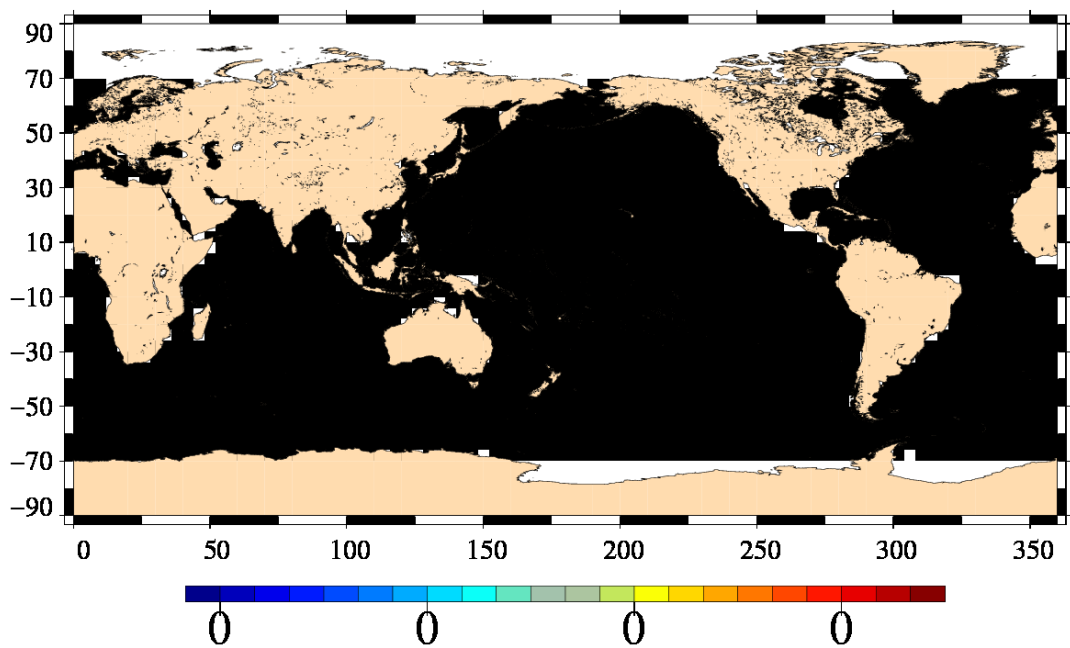
Diagnostic A104 (mission j1)

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).

$\text{VAR}(\text{SSH with RX_and_PTR_CCI}) - \text{VAR}(\text{SSH with RX_and_PTR_IPF})$
Mission j1, cycles 28 to 291



SSH crossovers : difference of variances (cm²)

Diagnostic type : Global internal analyses	Diagnostic A201 a (mission en)	
	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 en, cycles 10 to 84</div> <p>Mean (cm)</p> <p>SLA with RX_and_PTR_CCI Slope = 2.14 mm/yr [L.S.R. = 0.3]</p> <p>SLA with RX_and_PTR_IPF Slope = 0.675 mm/yr [L.S.R. = 0.1]</p> <p>2004 2006 2008</p>	

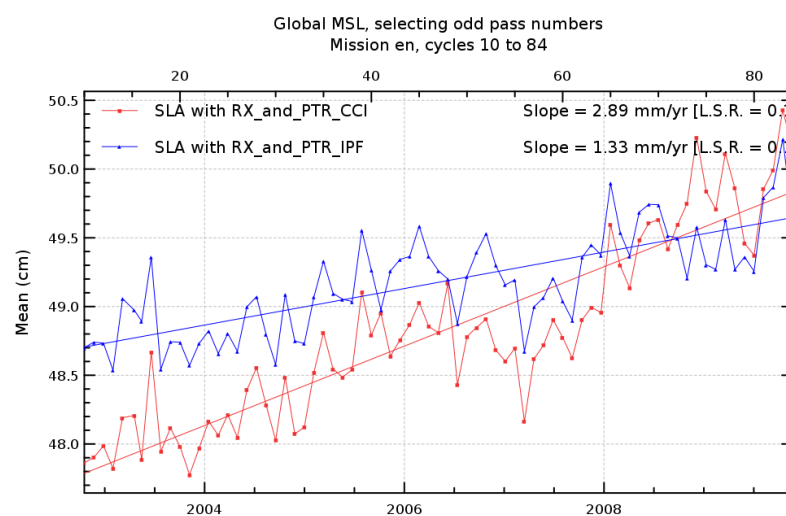
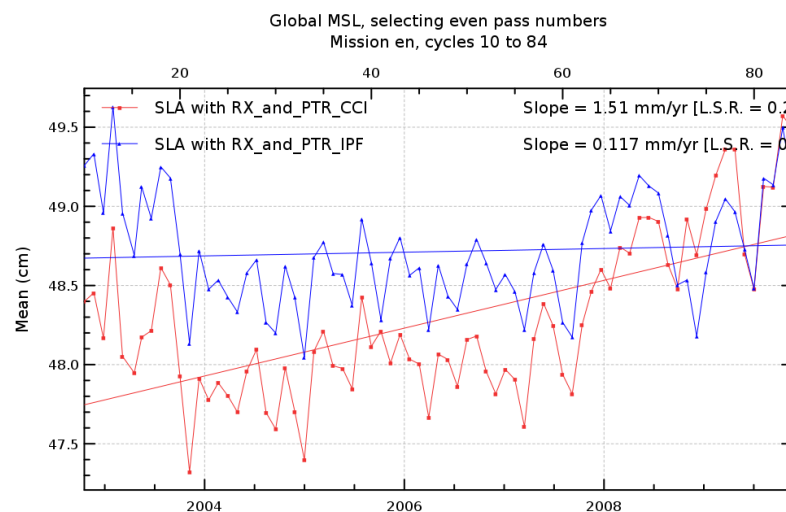
Diagnostic A201_b (mission en)

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



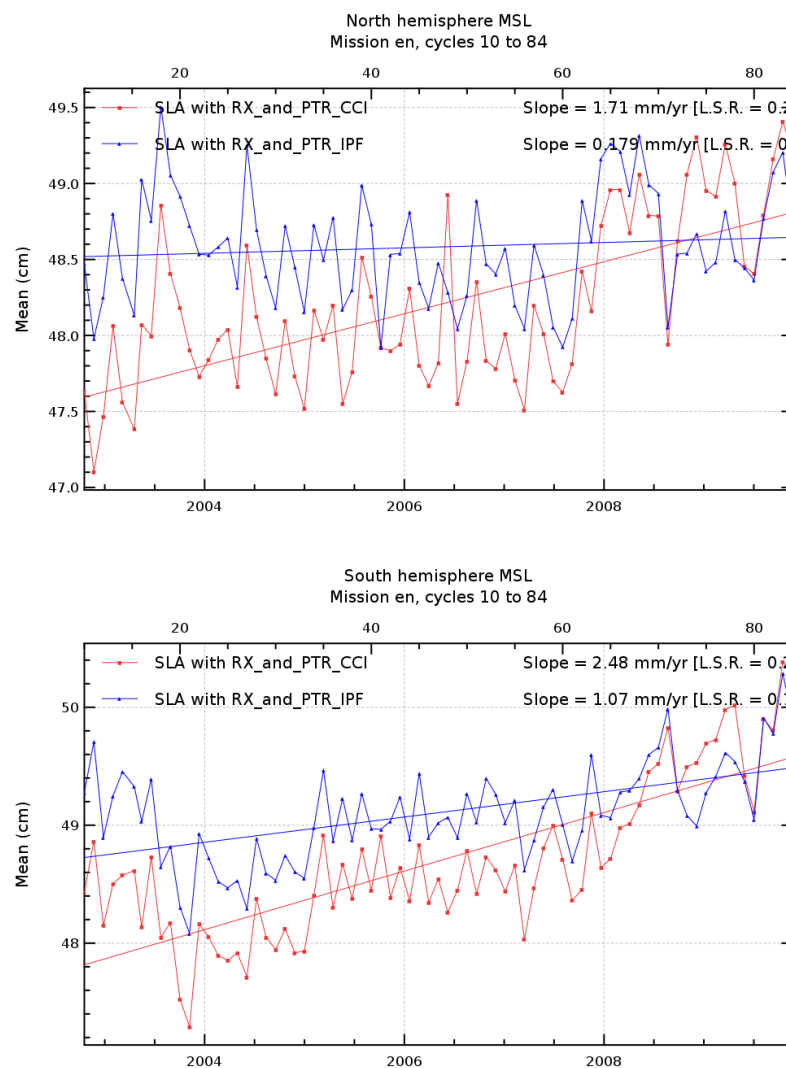
Diagnostic A201_c (mission en)

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 en)

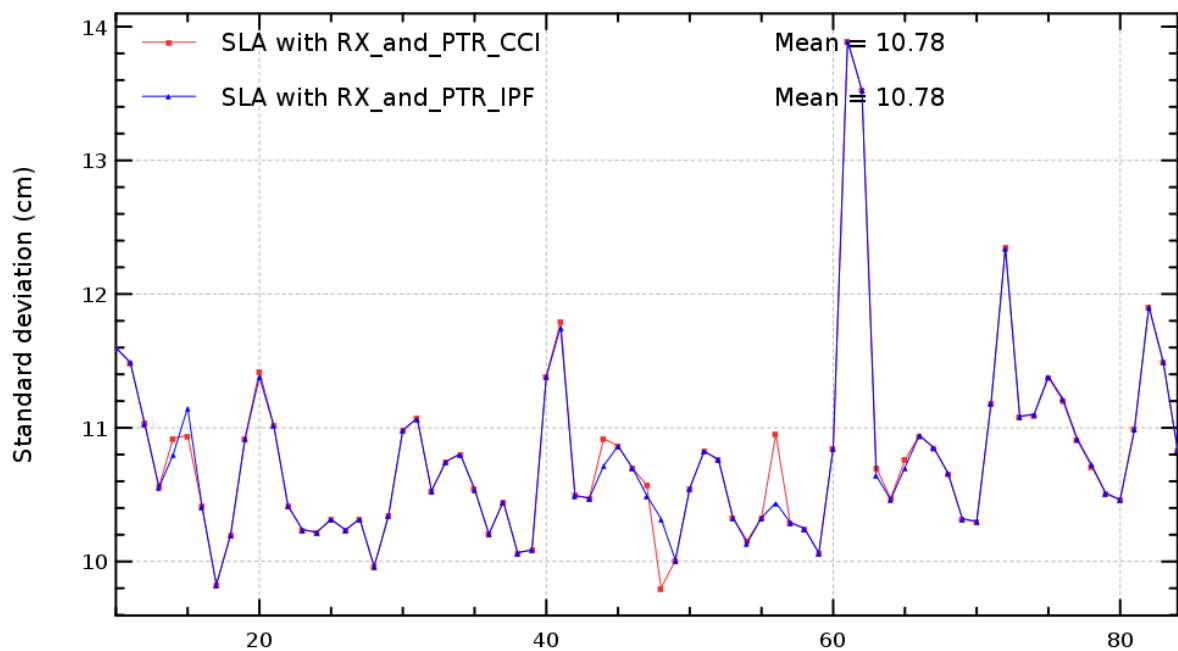
Name : Temporal evolution of Sea Level Anomaly (SLA)

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 en, cycles 10 to 84



Diagnostic A201_e (mission en)

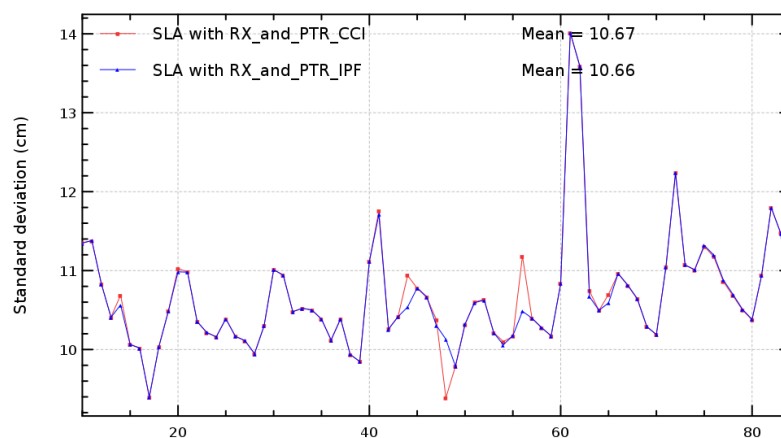
Name : Temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

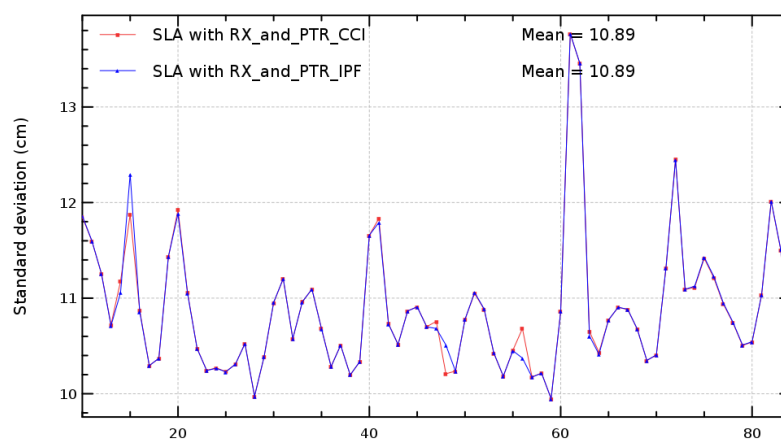
Description : The temporal evolution of SLA statistics (mean, standard deviation) are calculated from a cyclic way (altimeter repetivity, daily, weekly, monthly) using successively both altimetric components in the SLA calculation. These statistics are calculated from 1 Hz altimetric measurements after 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 en, cycles 10 to 84



Global MSL, selecting odd pass numbers
Mission en, cycles 10 to 84



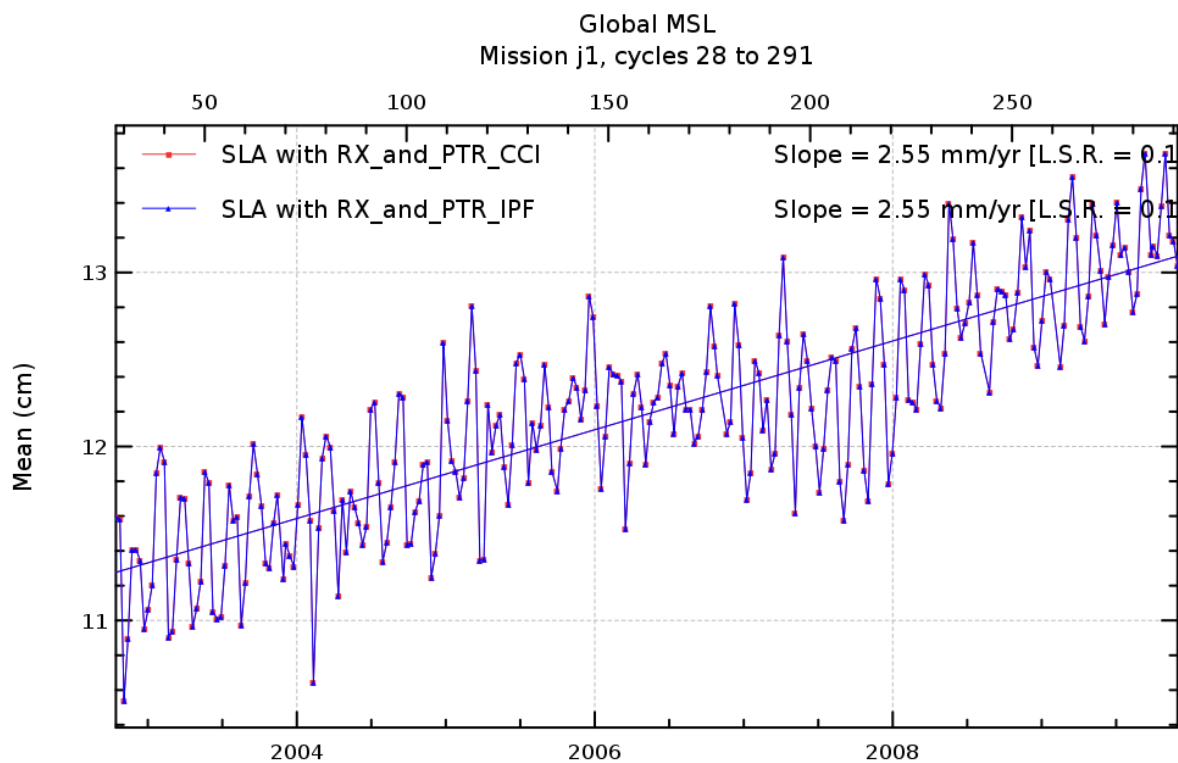
Diagnostic A201_a (mission j1)

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



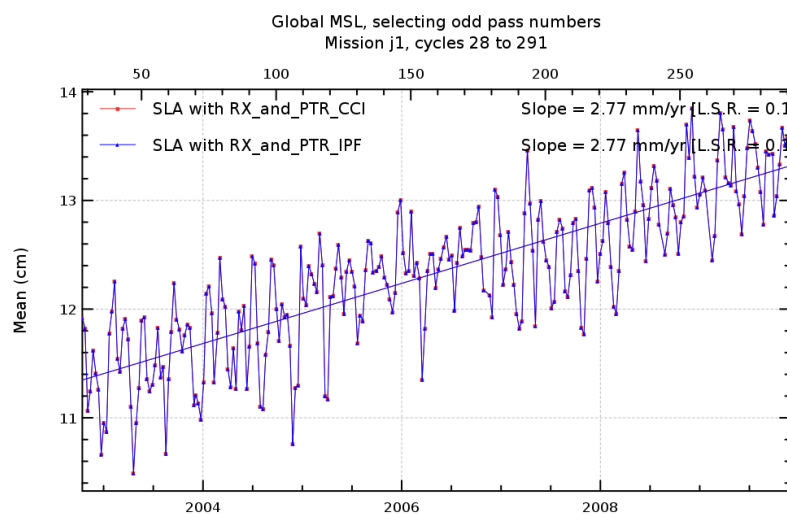
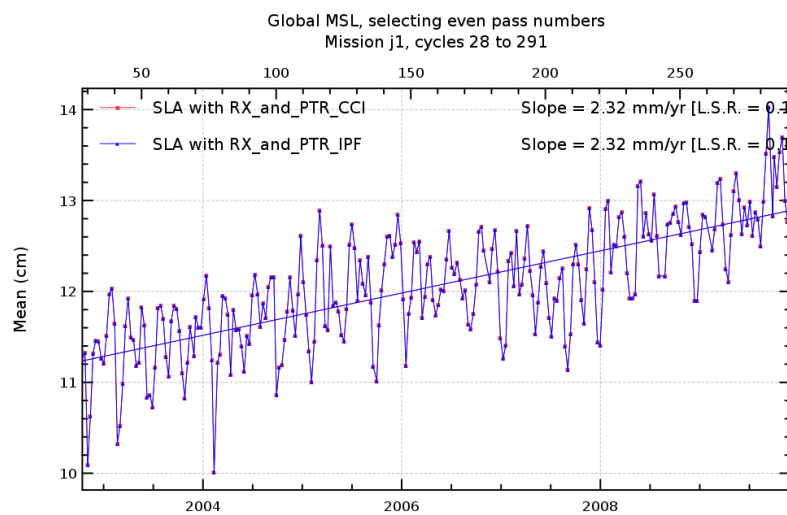
Diagnostic A201_b (mission j1)

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



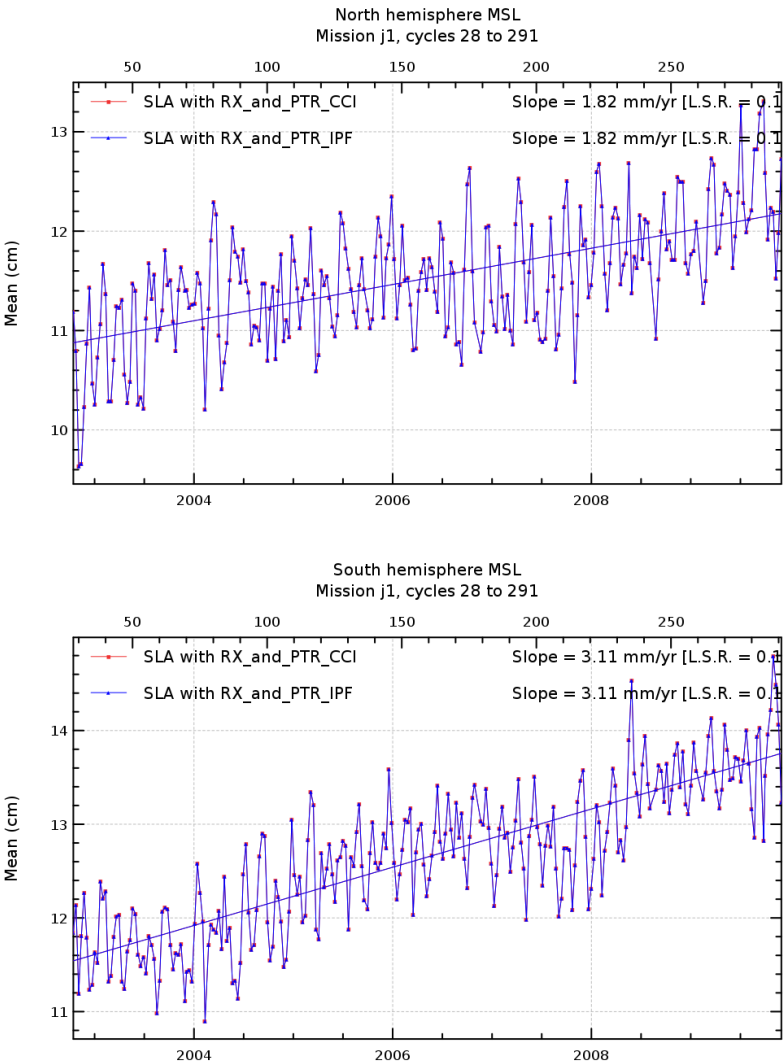
Diagnostic A201_c (mission j1)

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 j1)

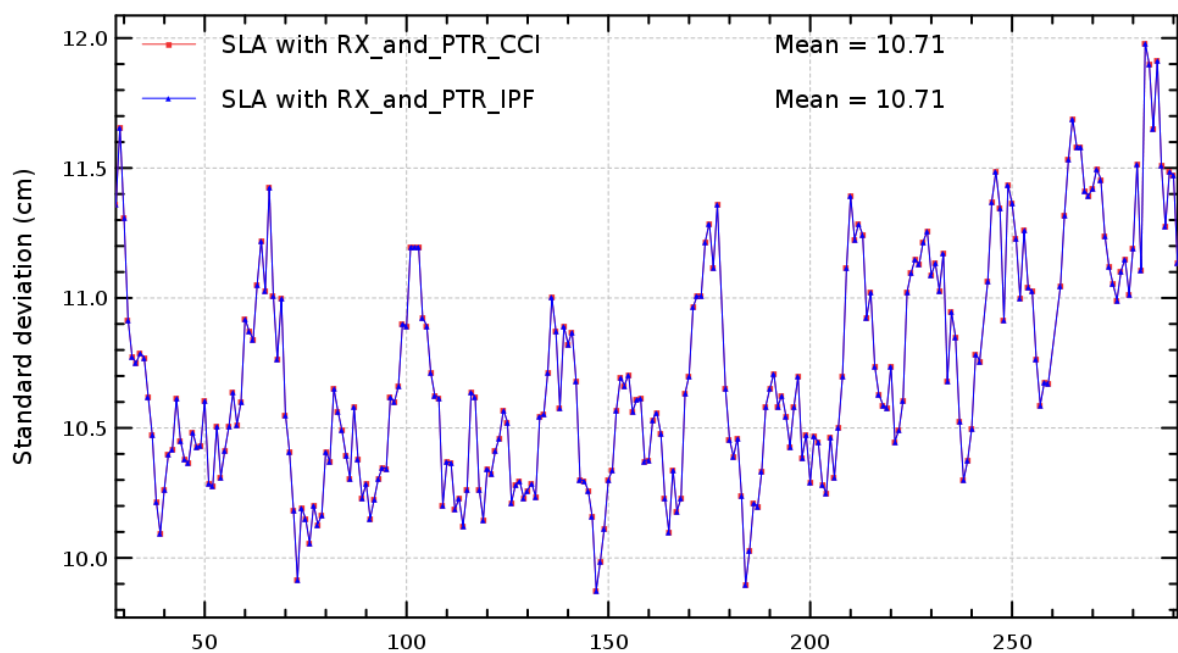
Name : Temporal evolution of Sea Level Anomaly (SLA)

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 j1, cycles 28 to 291



Diagnostic A201_e (mission j1)

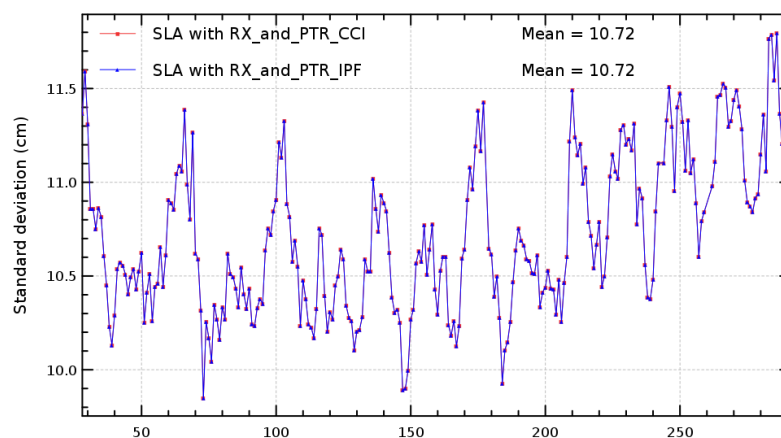
Name : Temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

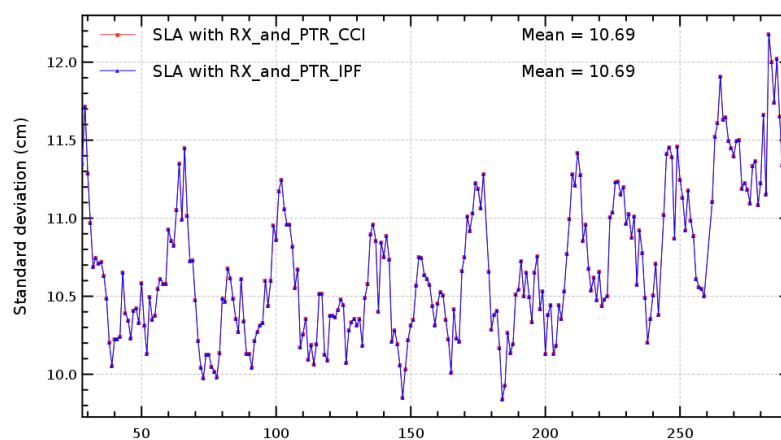
Description : The temporal evolution of SLA statistics (mean, standard deviation) are calculated from a cyclic way (altimeter repetivity, daily, weekly, monthly) using successively both altimetric components in the SLA calculation. These statistics are calculated from 1 Hz altimetric measurements after 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 j1, cycles 28 to 291



Global MSL, selecting odd pass numbers
Mission j1, cycles 28 to 291



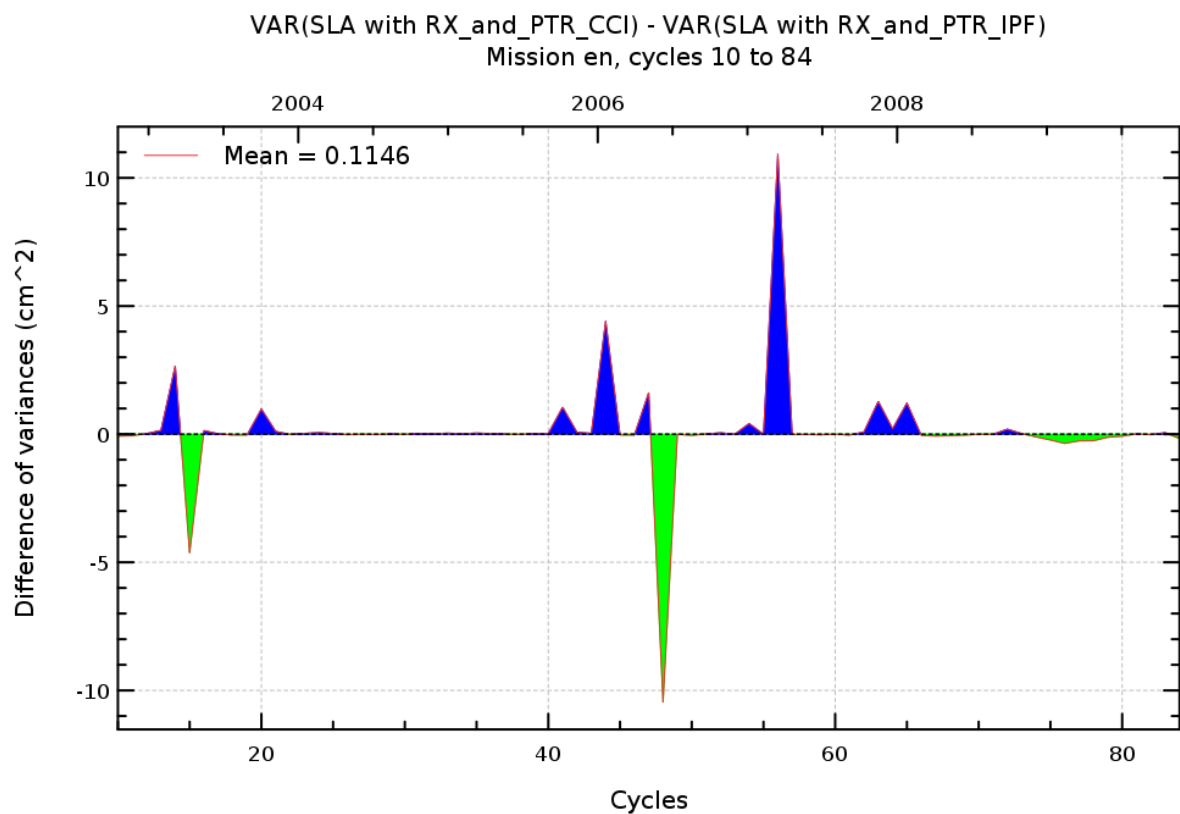
Diagnostic A202_a (mission en)

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



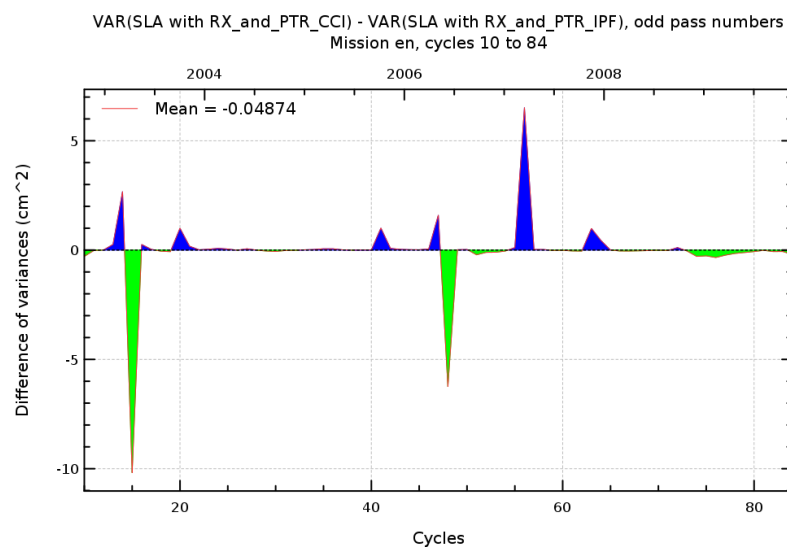
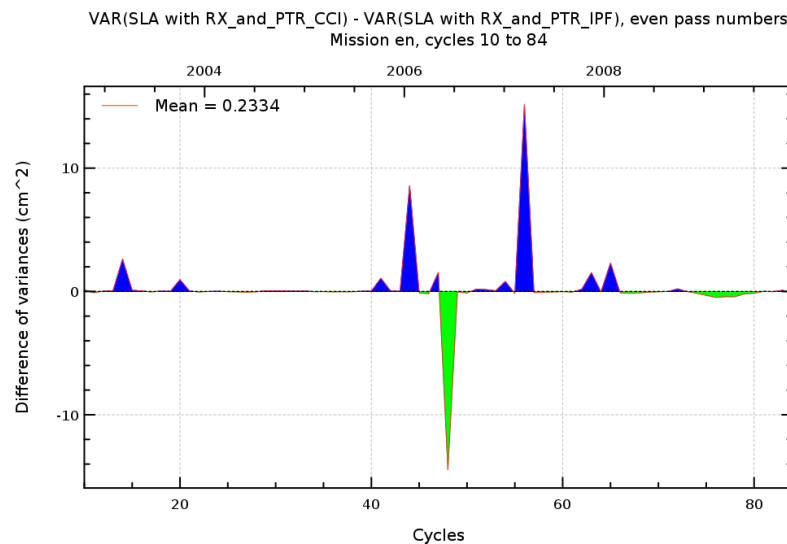
Diagnostic A202_b (mission en)

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



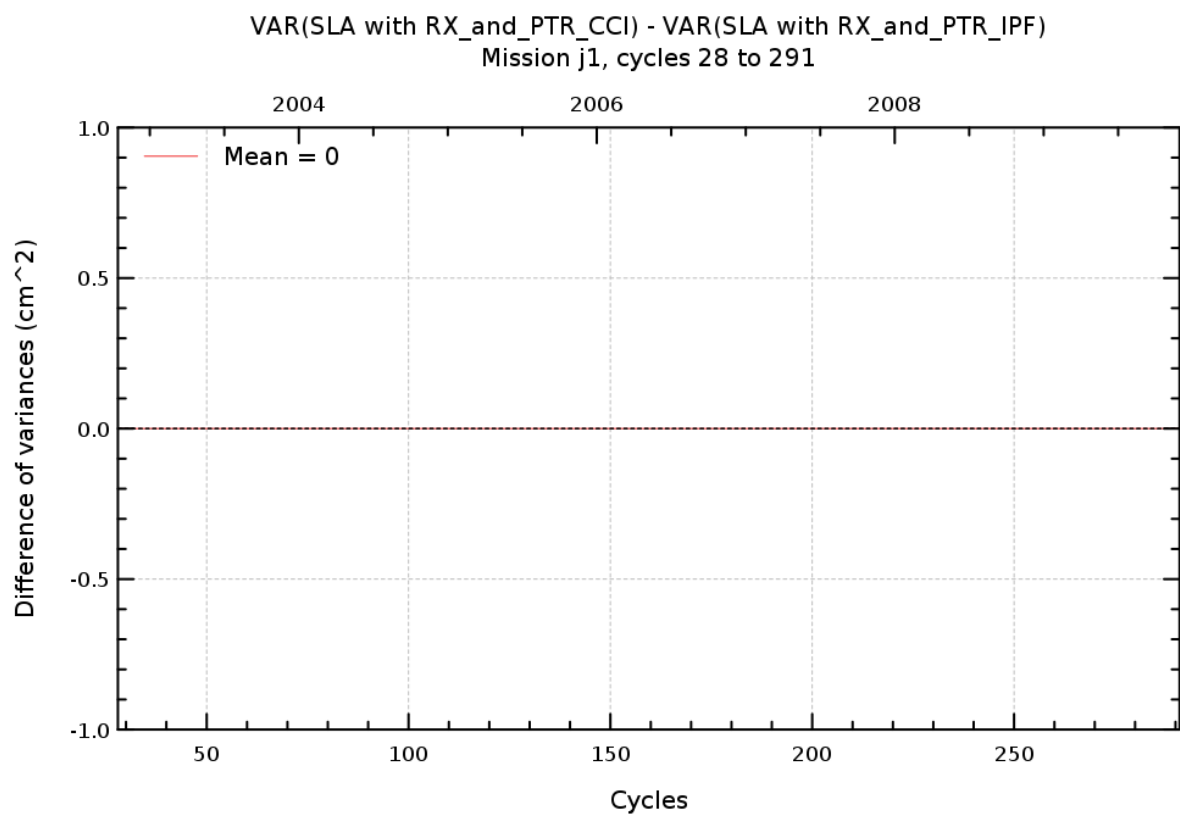
Diagnostic A202_a (mission j1)

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

Input data : Along track SLA

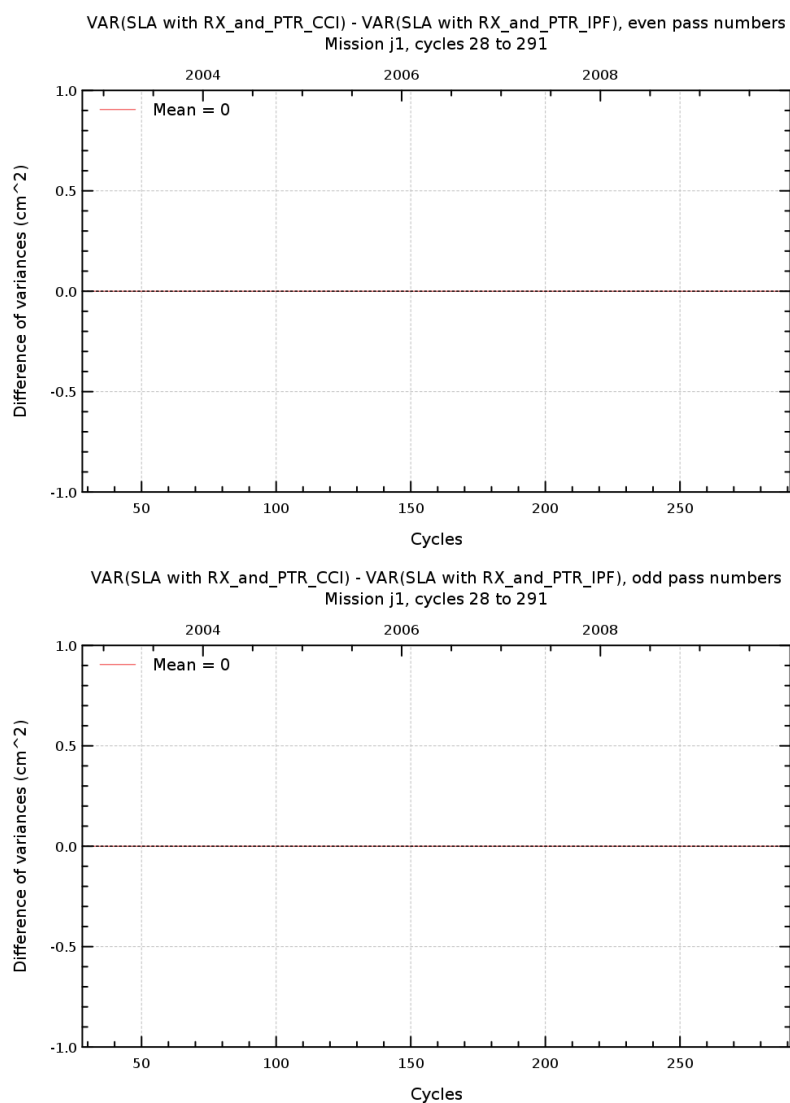
Description : The differences between temporal evolution of SLA are calculated from statistics derived from diagnostic A201 (mean, variance) using 2 different components in the SLA calculation. They are calculated globally, but also separating ascending and descending passes (except for SLA Grids) or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

Diagnostic type : Global internal analyses

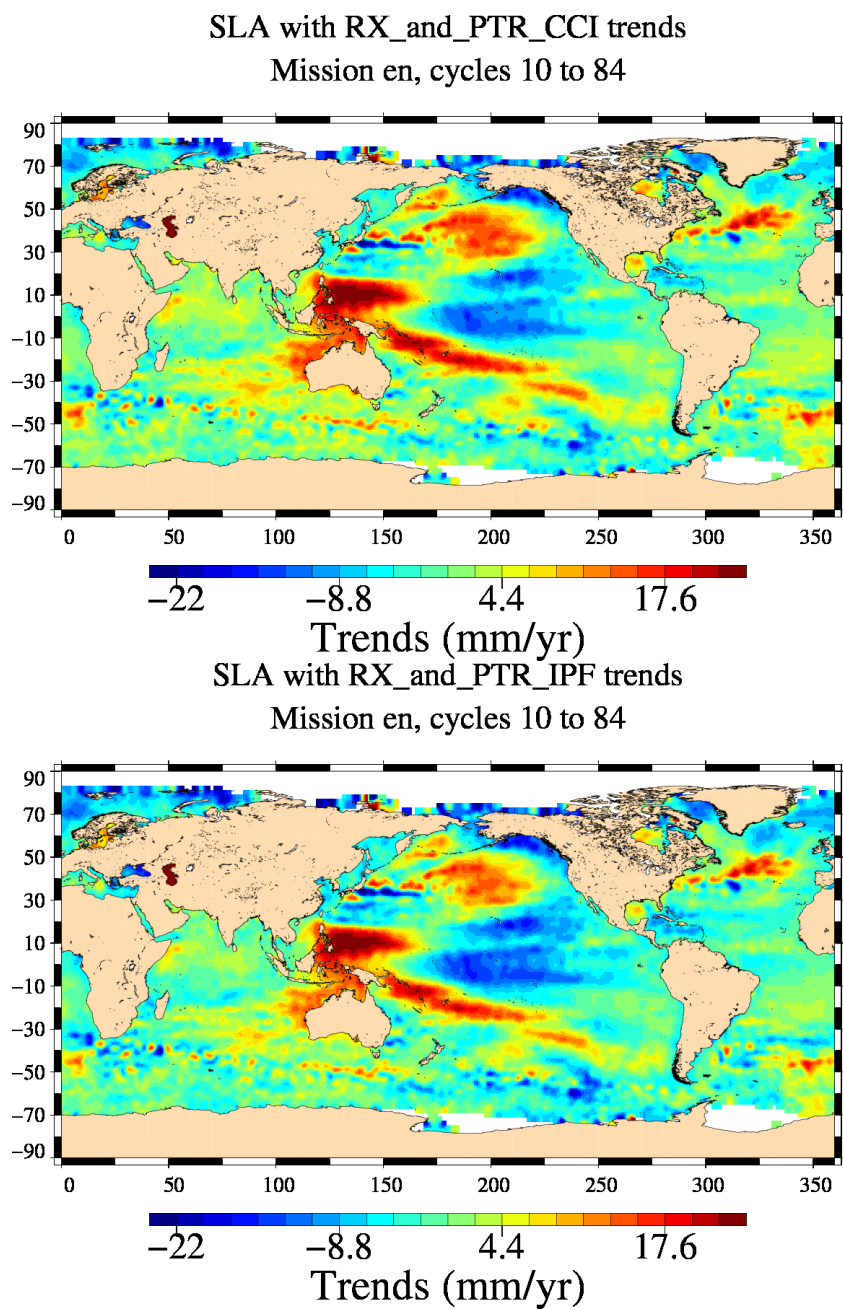


Diagnostic A202_b (mission j1)**Name :** Differences between temporal evolution of Sea Level Anomaly (SLA)**Input data :** Along track SLA

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 A203_a (mission en)	
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 A203_b (mission en)

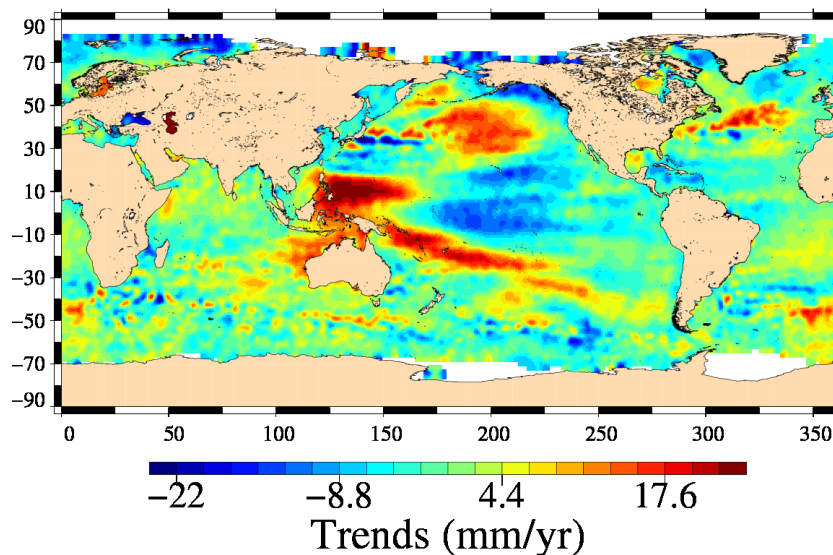
Name : Map of Sea Level Anomaly (SLA) over all the period

Input data : Along track SLA

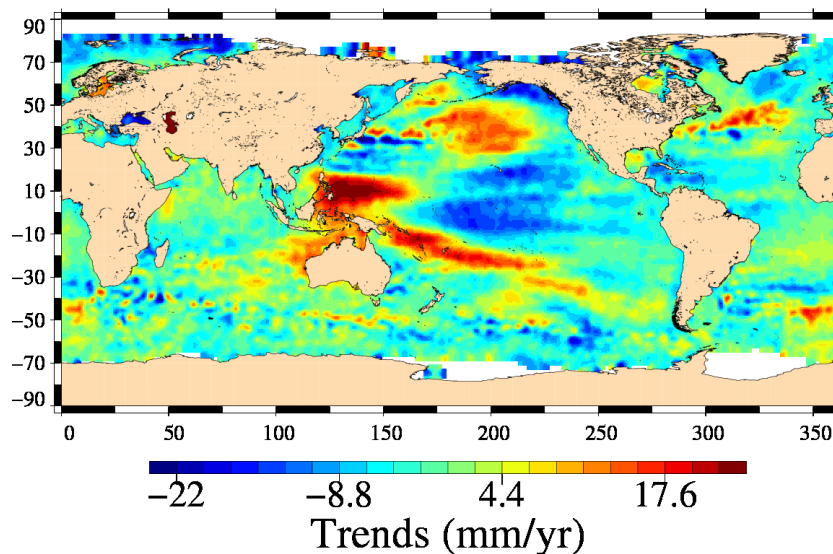
Description : The map of global statistics (mean, standard deviation) of SLA are calculated using successively both altimetric components in the SLA calculation over a large period. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements.

Diagnostic type : Global internal analyses

SLA with RX_and_PTR_CCI trends : even pass numbers
Mission en, cycles 10 to 84



SLA with RX_and_PTR_IPF trends : even pass numbers
Mission en, cycles 10 to 84



Diagnostic A203_c (mission en)

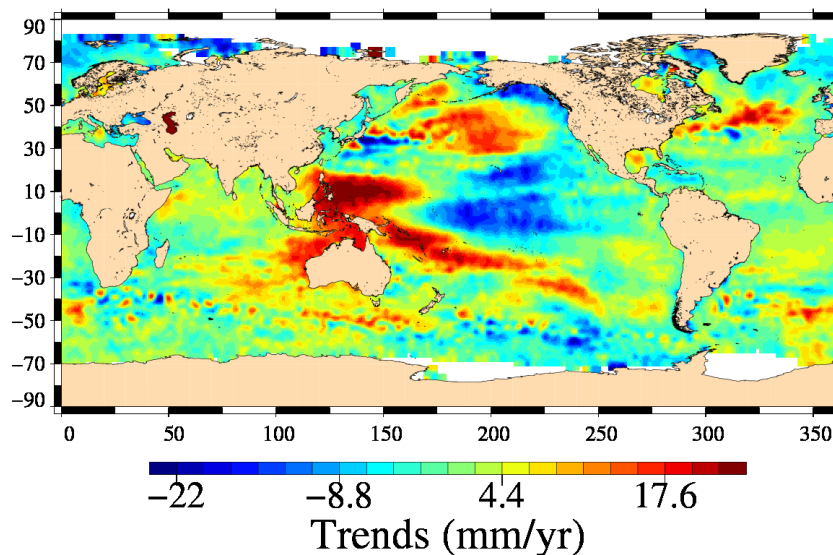
Name : Map of Sea Level Anomaly (SLA) over all the period

Input data : Along track SLA

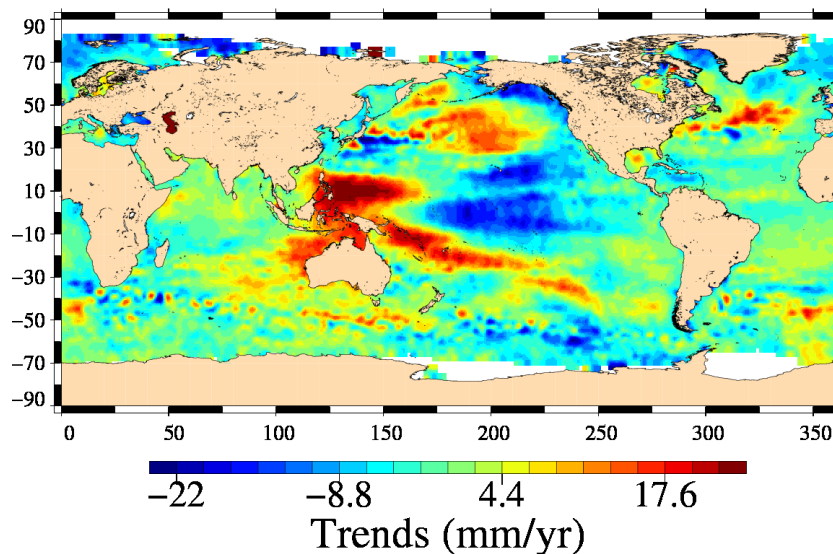
Description : The map of global statistics (mean, standard deviation) of SLA are calculated using successively both altimetric components in the SLA calculation over a large period. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements.

Diagnostic type : Global internal analyses

SLA with RX_and_PTR_CCI trends : odd pass numbers
Mission en, cycles 10 to 84



SLA with RX_and_PTR_IPF trends : odd pass numbers
Mission en, cycles 10 to 84



Diagnostic A203_a (mission j1)

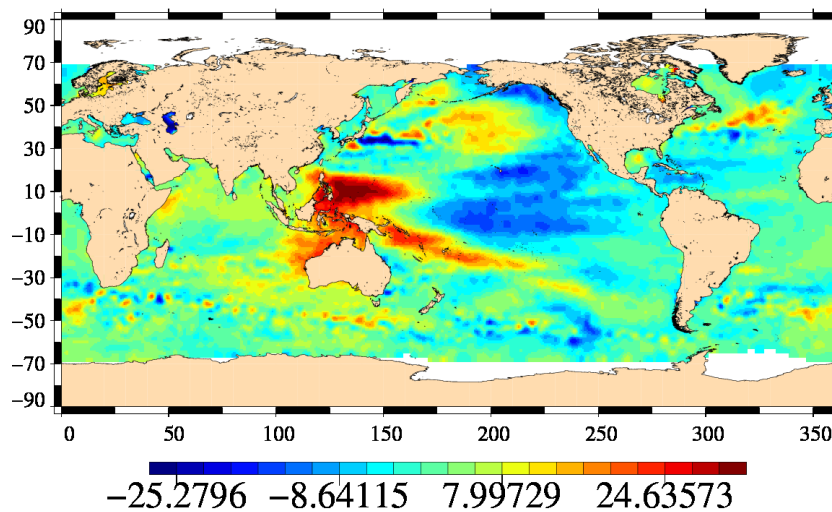
Name : Map of Sea Level Anomaly (SLA) over all the period

Input data : Along track SLA

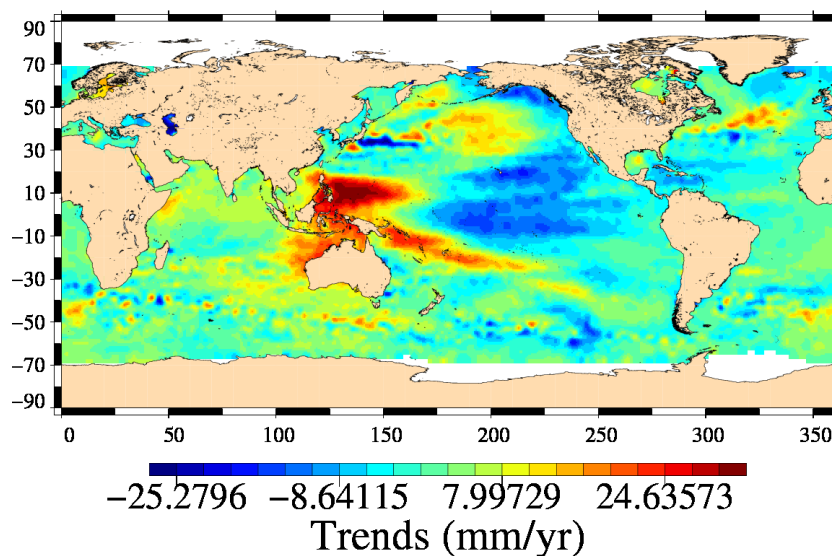
Description : The map of global statistics (mean, standard deviation) of SLA are calculated using successively both altimetric components in the SLA calculation over a large period. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements.

Diagnostic type : Global internal analyses

SLA with RX_and_PTR_CCI trends
Mission j1, cycles 28 to 291



SLA with RX_and_PTR_IPF trends
Mission j1, cycles 28 to 291



Diagnostic A203_b (mission j1)

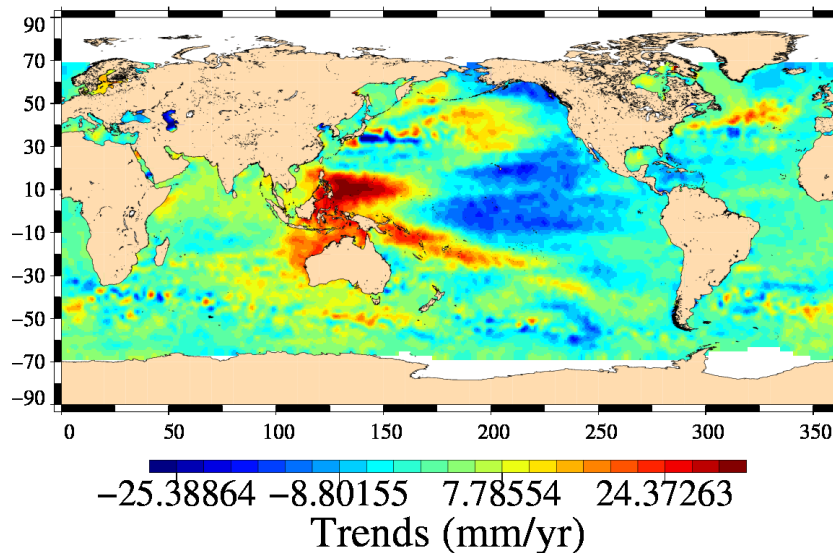
Name : Map of Sea Level Anomaly (SLA) over all the period

Input data : Along track SLA

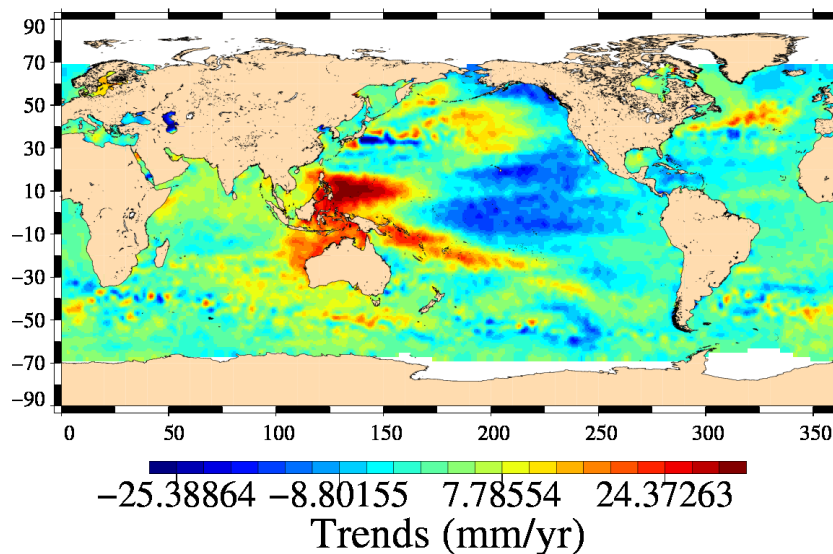
Description : The map of global statistics (mean, standard deviation) of SLA are calculated using successively both altimetric components in the SLA calculation over a large period. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements.

Diagnostic type : Global internal analyses

SLA with RX_and_PTR_CCI trends : even pass numbers
Mission j1, cycles 28 to 291



SLA with RX_and_PTR_IPF trends : even pass numbers
Mission j1, cycles 28 to 291



Diagnostic A203_c (mission j1)

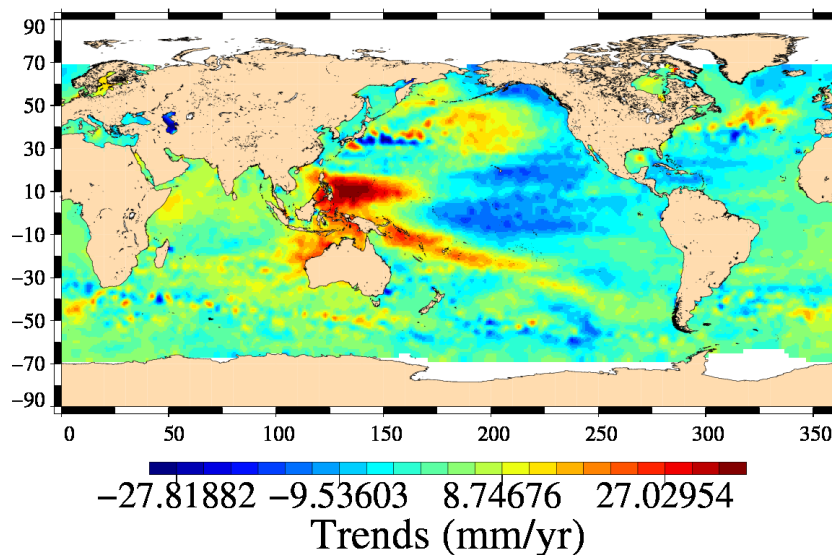
Name : Map of Sea Level Anomaly (SLA) over all the period

Input data : Along track SLA

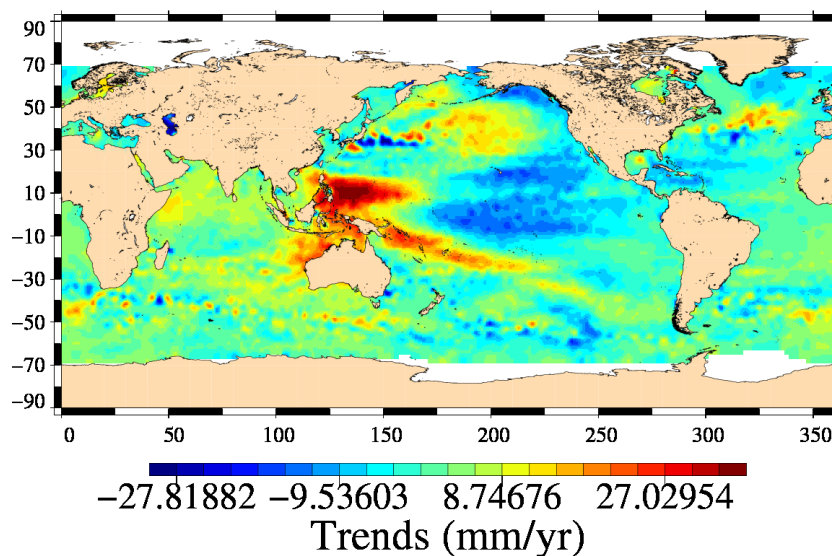
Description : The map of global statistics (mean, standard deviation) of SLA are calculated using successively both altimetric components in the SLA calculation over a large period. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements.

Diagnostic type : Global internal analyses

SLA with RX_and_PTR_CCI trends : odd pass numbers
Mission j1, cycles 28 to 291



SLA with RX_and_PTR_IPF trends : odd pass numbers
Mission j1, cycles 28 to 291



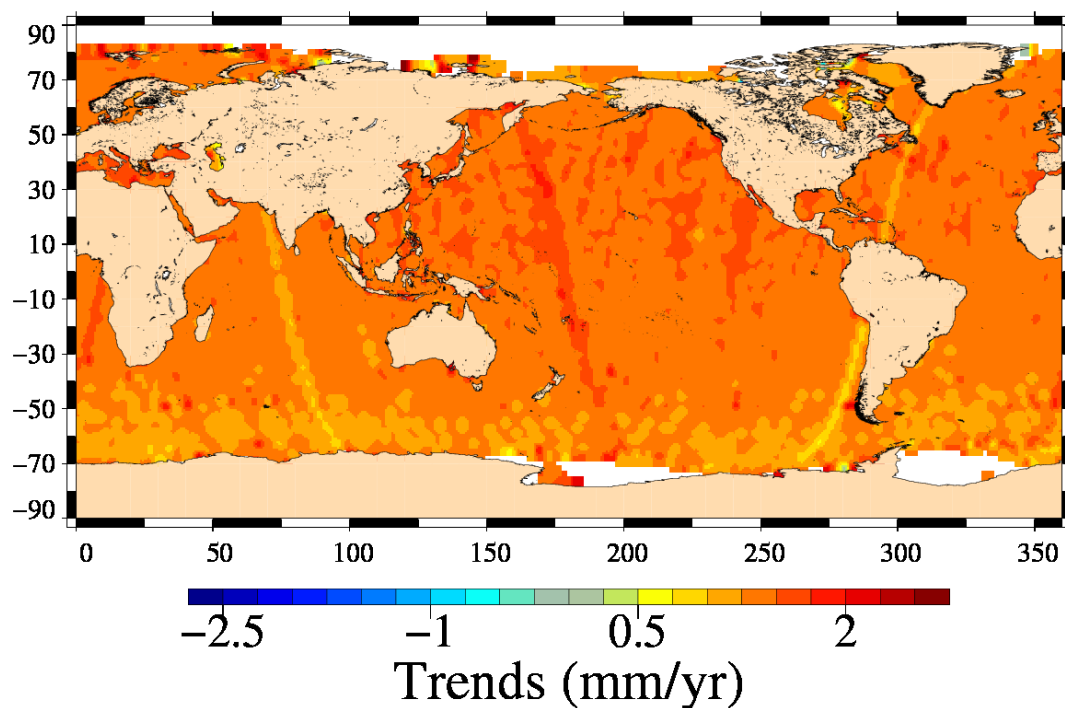
Diagnostic A204_a (mission en)

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 RX_and_PTR_CCI trends – SLA with RX_and_PTR_IPF trends
Mission en, cycles 10 to 84



Diagnostic A204_b (mission en)

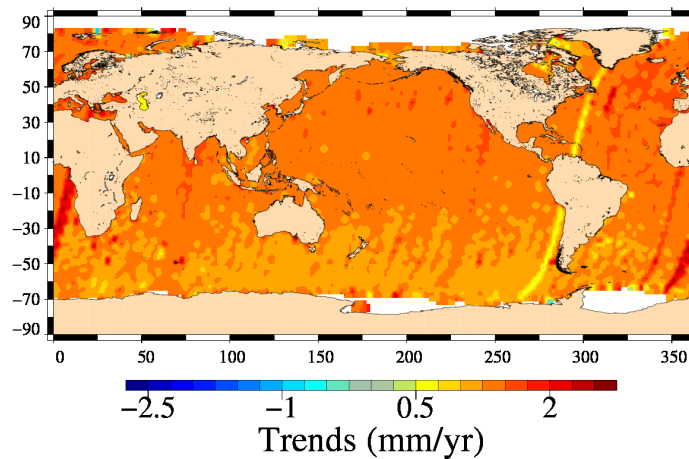
Name : Differences between maps of SLA

Input data : Along track SLA

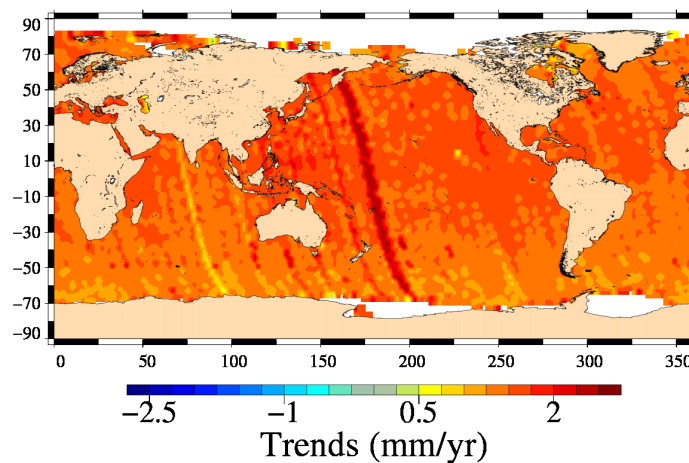
Description : The difference of SLA maps (mean, standard deviation, slope) is calculated from maps derived from diagnostic A203 using successively both altimetric components in the SLA calculation over a given period. This can be done globally, or separating in ascending and descending passes (except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

Diagnostic type : Global internal analyses

1 RX_and_PTR_CCI trends – SLA with RX_and_PTR_IPF trends : even pass
Mission en, cycles 10 to 84



h RX_and_PTR_CCI trends – SLA with RX_and_PTR_IPF trends : odd pass
Mission en, cycles 10 to 84



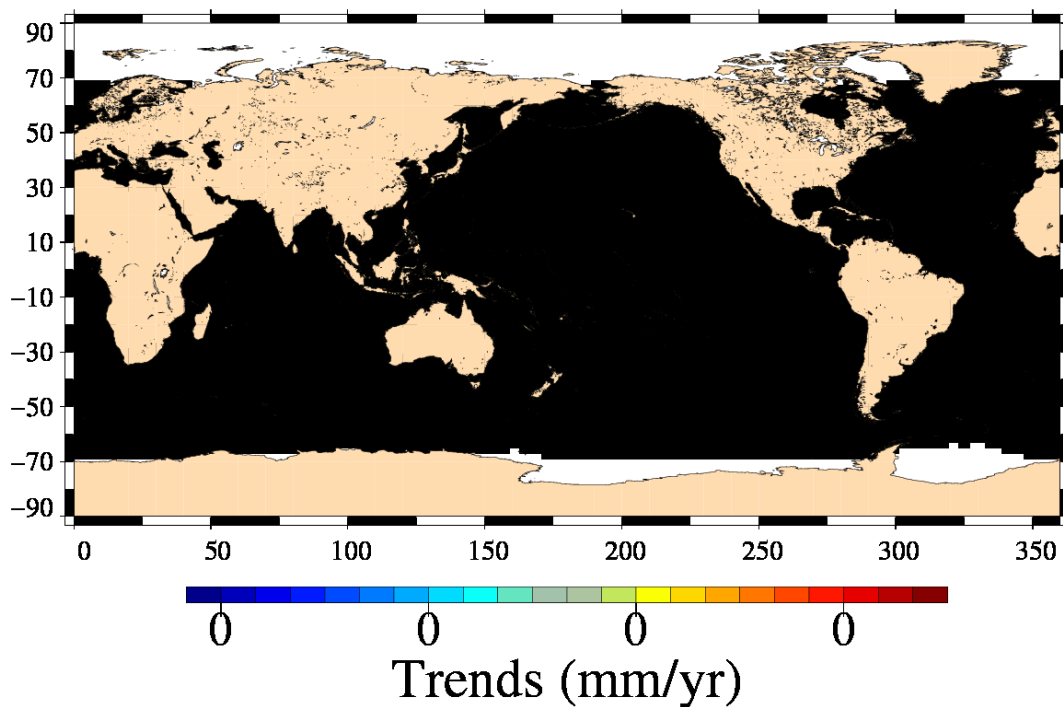
Diagnostic A204_a (mission j1)

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 RX_and_PTR_CCI trends – SLA with RX_and_PTR_IPF trends
Mission j1, cycles 28 to 291



Diagnostic type : Global internal analyses

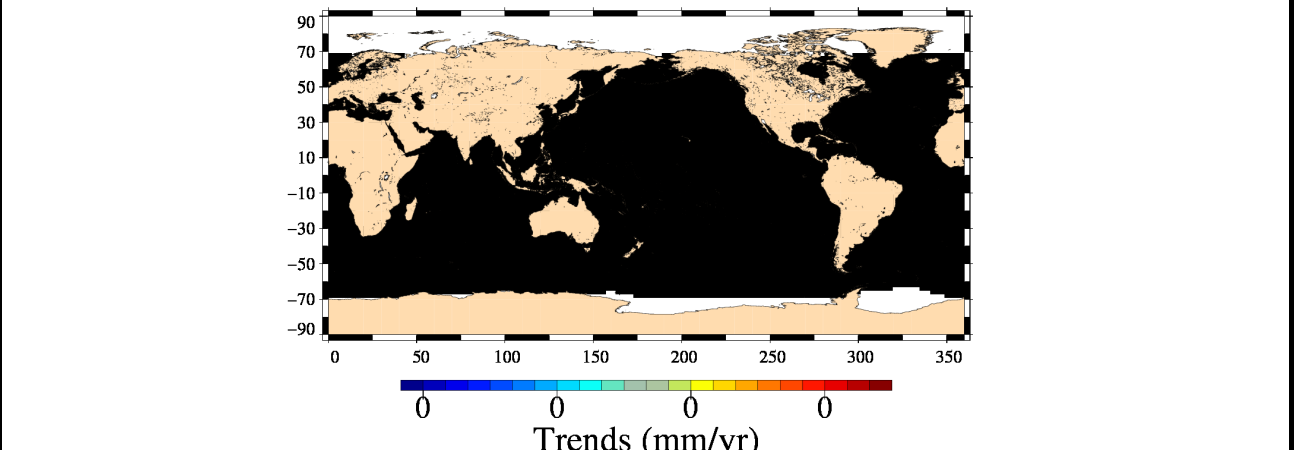
Diagnostic A204_b (mission j1)

Name : Differences between maps of SLA

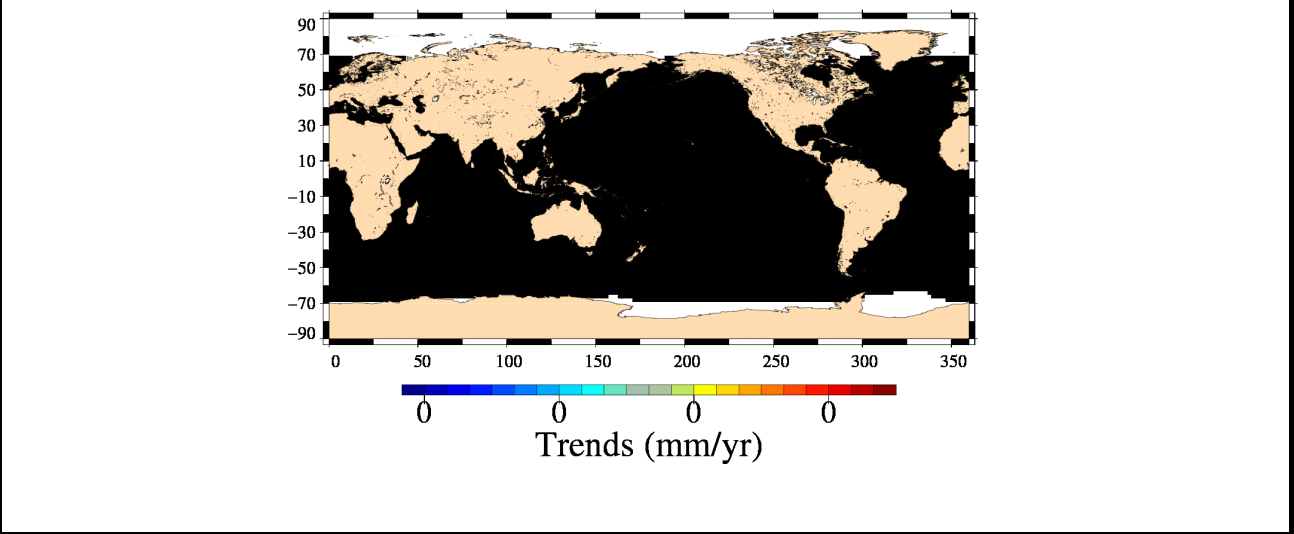
<p>Input data : Along track SLA</p>
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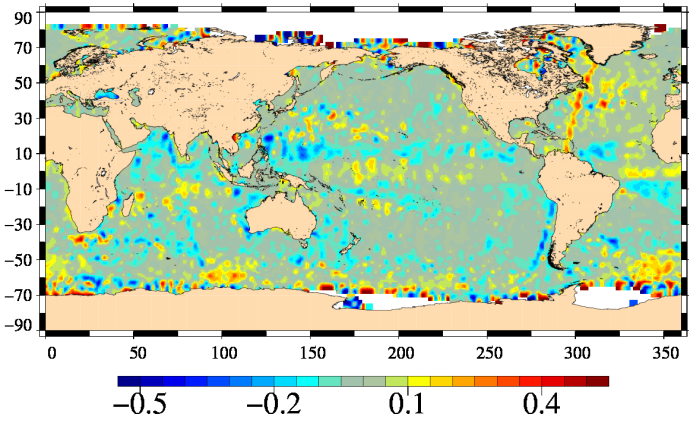
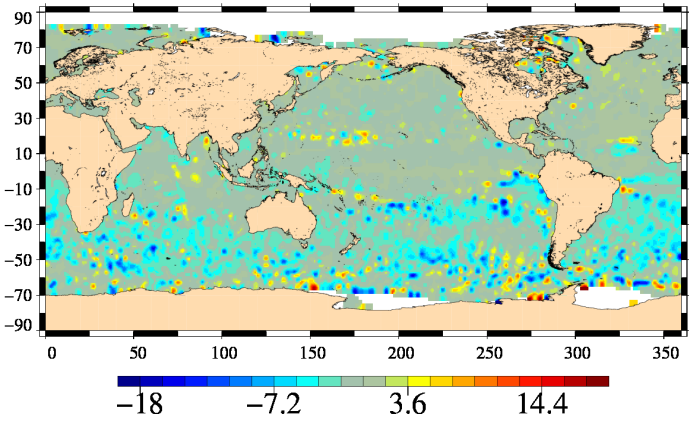
Description : The difference of SLA maps (mean, standard deviation, slope) is calculated from maps derived from diagnostic A203 using successively both altimetric components in the SLA calculation over a given period. This can be done globally, or separating in ascending and descending passes (except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

1 RX_and_PTR_CCI trends – SLA with RX_and_PTR_IPF trends : even pass
Mission j1, cycles 28 to 291



h RX_and_PTR_CCI trends – SLA with RX_and_PTR_IPF trends : odd pass
Mission j1, cycles 28 to 291



Diagnostic type : Global internal analyses	Diagnostic A205_a (mission en)	
	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).	
	<div>RX_and_PTR_CCI amplitude – SLA with RX_and_PTR_IPF amplitude : ann Mission en, cycles 10 to 84</div> <div><p>A global map showing the difference in SLA amplitude between RX_and_PTR_CCI and RX_and_PTR_IPF for mission cycles 10 to 84. The map uses a color scale from -0.5 cm (dark blue) to 0.4 cm (dark red). The x-axis represents longitude from 0 to 350, and the y-axis represents latitude from -90 to 90. The map shows significant variations in amplitude across the globe, with higher values (red/orange) concentrated in the tropical regions and lower values (blue) in the mid-latitude regions.</p><p>Amplitude (cm)</p></div> <div>with RX_and_PTR_CCI phase – SLA with RX_and_PTR_IPF phase : annual Mission en, cycles 10 to 84</div> <div><p>A global map showing the difference in SLA phase between RX_and_PTR_CCI and RX_and_PTR_IPF for mission cycles 10 to 84. The map uses a color scale from -18 degrees (dark blue) to 14.4 degrees (dark red). The x-axis represents longitude from 0 to 350, and the y-axis represents latitude from -90 to 90. The map shows significant variations in phase across the globe, with higher values (red/orange) concentrated in the tropical regions and lower values (blue) in the mid-latitude regions.</p><p>Phase (degree)</p></div>	

Diagnostic A205_b (mission en)

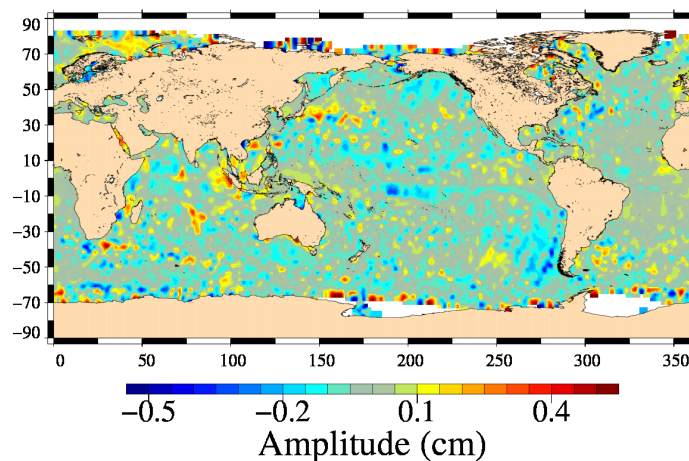
Name : Differences between maps of SLA (2)

Input data : Along track SLA

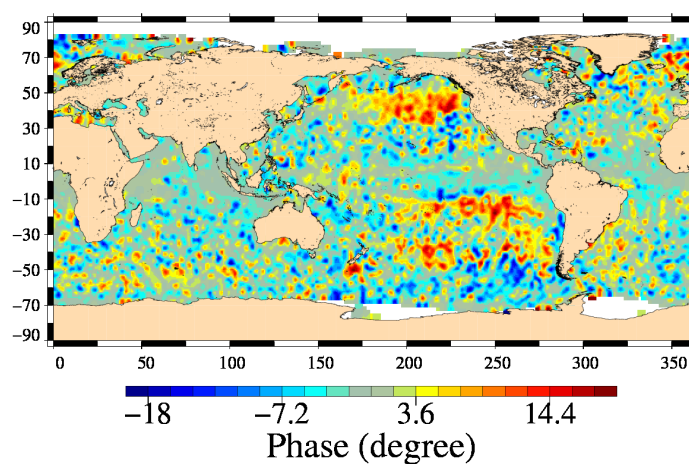
Description : The difference of SLA maps (mean, standard deviation, slope) is calculated from maps derived from diagnostic A203 using successively both altimetric components in the SLA calculation over a given period. This can be done globally, or separating in ascending and descending passes (except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

Diagnostic type : Global internal analyses

Δ RX_and_PTR_CCI amplitude – SLA with RX_and_PTR_IPF amplitude : semi-annual
Mission en, cycles 10 to 84



Δ RX_and_PTR_CCI phase – SLA with RX_and_PTR_IPF phase : semi-annual
Mission en, cycles 10 to 84



Diagnostic A205_a (mission j1)

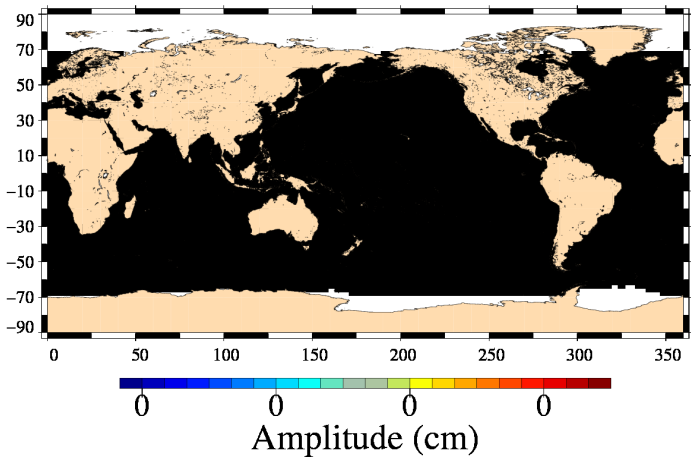
Name : Differences between maps of SLA (2)

Input data : Along track SLA

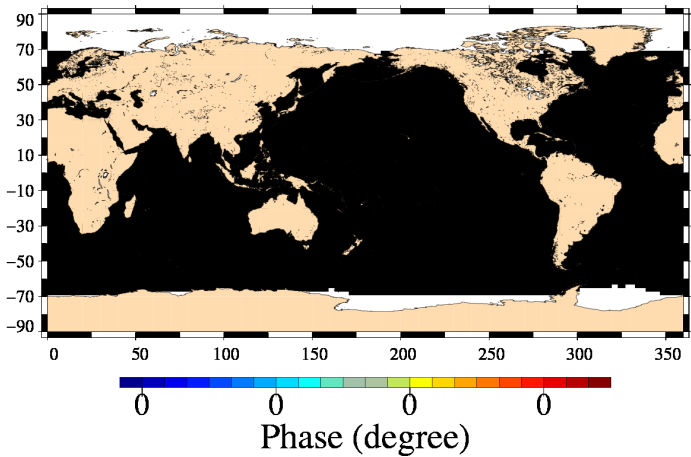
Description : The difference of SLA maps (mean, standard deviation, slope) is calculated from maps derived from diagnostic A203 using successively both altimetric components in the SLA calculation over a given period. This can be done globally, or separating in ascending and descending passes (except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

Diagnostic type : Global internal analyses

RX_and_PTR_CCI amplitude – SLA with RX_and_PTR_IPF amplitude : annual
Mission j1, cycles 28 to 291



with RX_and_PTR_CCI phase – SLA with RX_and_PTR_IPF phase : annual
Mission j1, cycles 28 to 291



Diagnostic A205_b (mission j1)

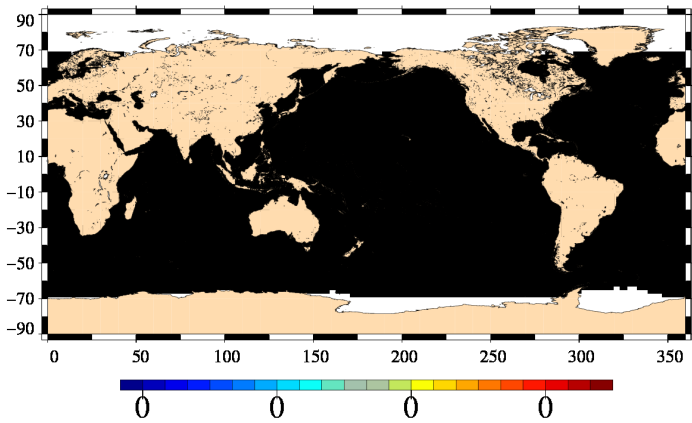
Name : Differences between maps of SLA (2)

Input data : Along track SLA

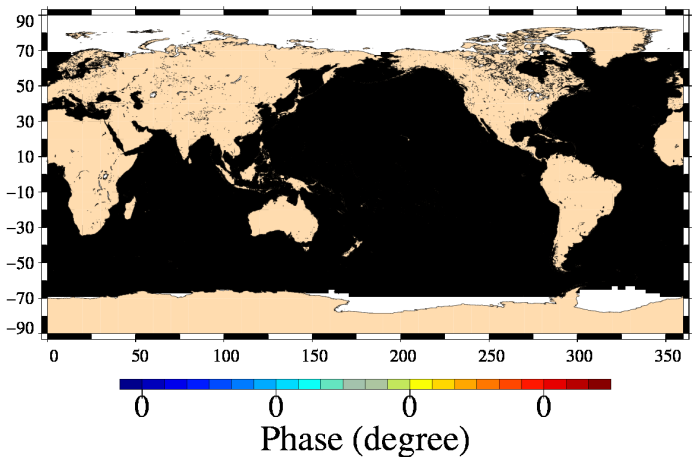
Description : The difference of SLA maps (mean, standard deviation, slope) is calculated from maps derived from diagnostic A203 using successively both altimetric components in the SLA calculation over a given period. This can be done globally, or separating in ascending and descending passes (except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

Diagnostic type : Global internal analyses

Δ RX_and_PTR_CCI amplitude – SLA with RX_and_PTR_IPF amplitude : semi-annual
Mission j1, cycles 28 to 291



Δ RX_and_PTR_CCI phase – SLA with RX_and_PTR_IPF phase : semi-annual
Mission j1, cycles 28 to 291



Diagnostic A206_a (mission en)	
Name : Periodogram derived from temporal evolution of Sea Level Anomaly (SLA)	
Input data : Along track SLA	
<p>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.</p>	
<div><p>Periodogram of SLA (reference period = 1 year) Mission en, cycles 10 to 84</p><p>Periodogram of SLA (period = [0, 1 year]) Mission en, cycles 10 to 84</p></div>	

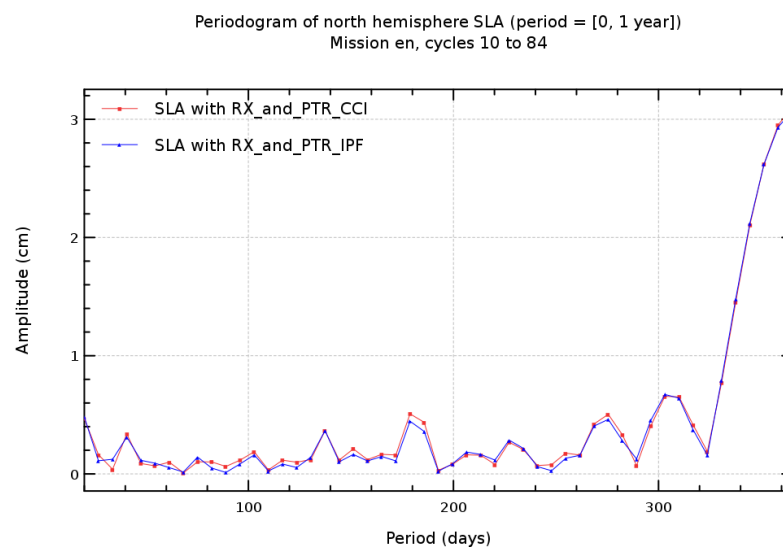
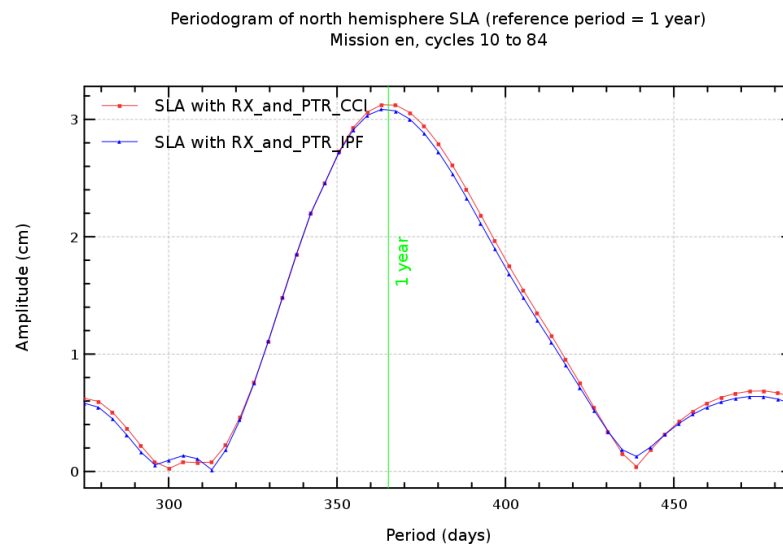
Diagnostic A206_b (mission en)

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 en)

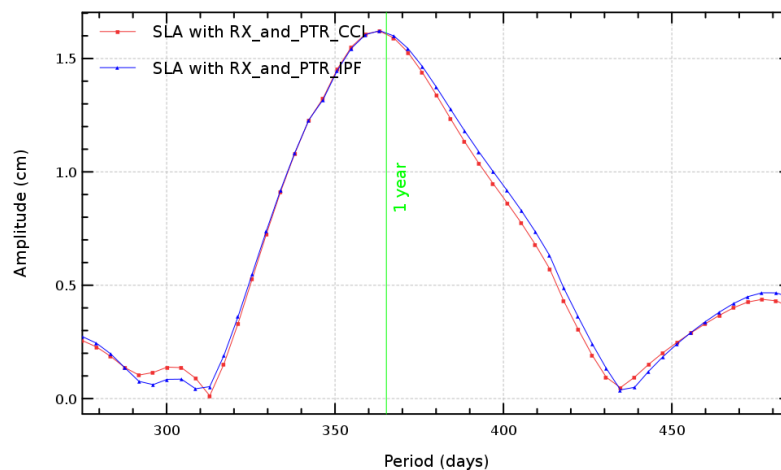
Name : Periodogram derived from temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

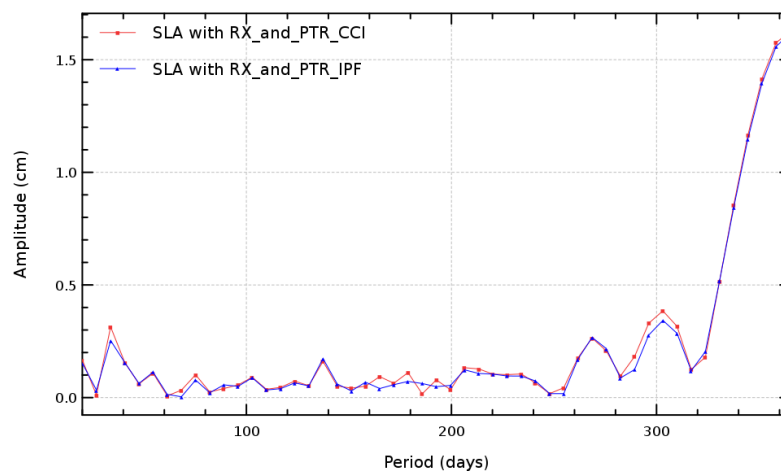
Description : The periodogram derived from temporal evolution of SLA (global, northern or southern hemisphere) can be done over all periods or focusing on particular periods, such as annual, semi annual or 60 day signal. Therefore mean of SLA differences are computed (every day or cycle), and time data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

Diagnostic type : Global internal analyses

Periodogram of south hemisphere SLA (reference period = 1 year)
Mission en, cycles 10 to 84



Periodogram of south hemisphere SLA (period = [0, 1 year])
Mission en, cycles 10 to 84



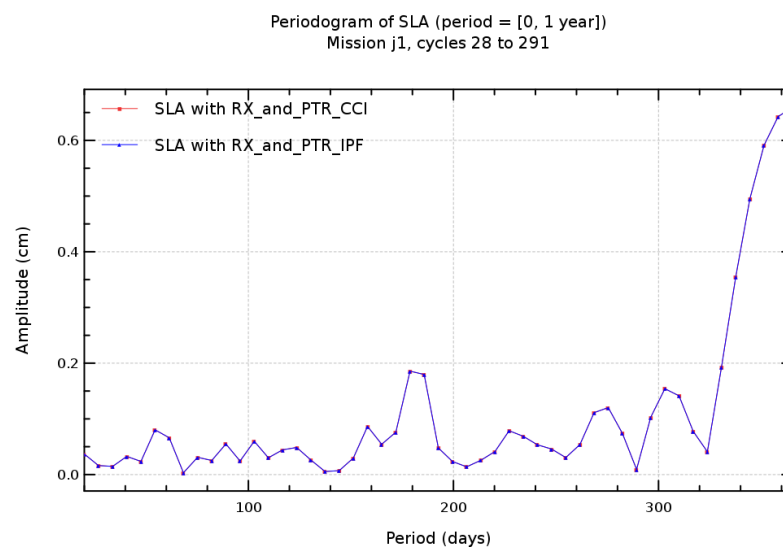
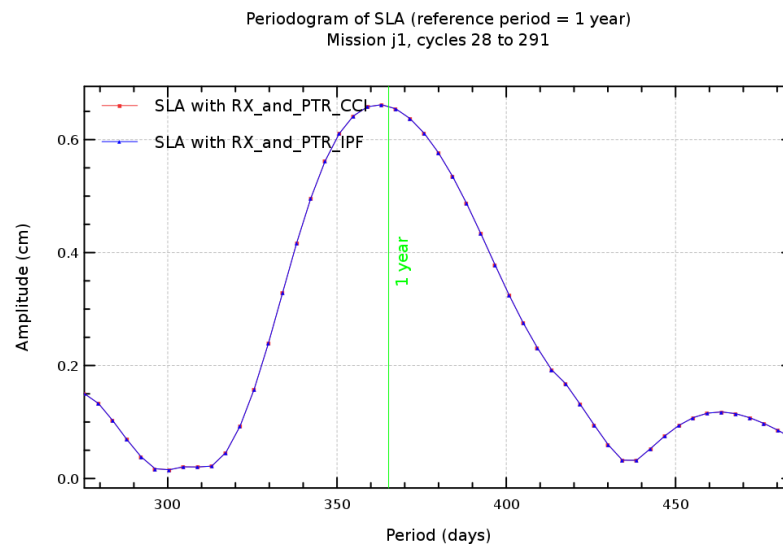
Diagnostic A206_a (mission j1)

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 j1)

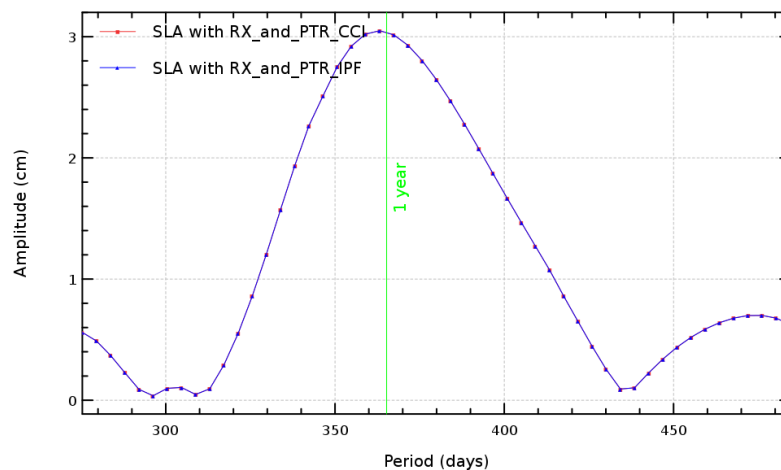
Name : Periodogram derived from temporal evolution of Sea Level Anomaly (SLA)

Input data : Along track SLA

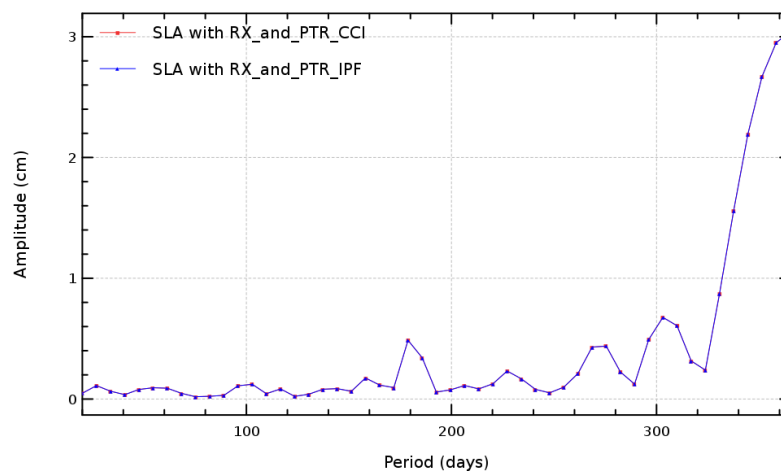
Description : The periodogram derived from temporal evolution of SLA (global, northern or southern hemisphere) can be done over all periods or focusing on particular periods, such as annual, semi annual or 60 day signal. Therefore mean of SLA differences are computed (every day or cycle), and time data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

Diagnostic type : Global internal analyses

Periodogram of north hemisphere SLA (reference period = 1 year)
Mission j1, cycles 28 to 291



Periodogram of north hemisphere SLA (period = [0, 1 year])
Mission j1, cycles 28 to 291



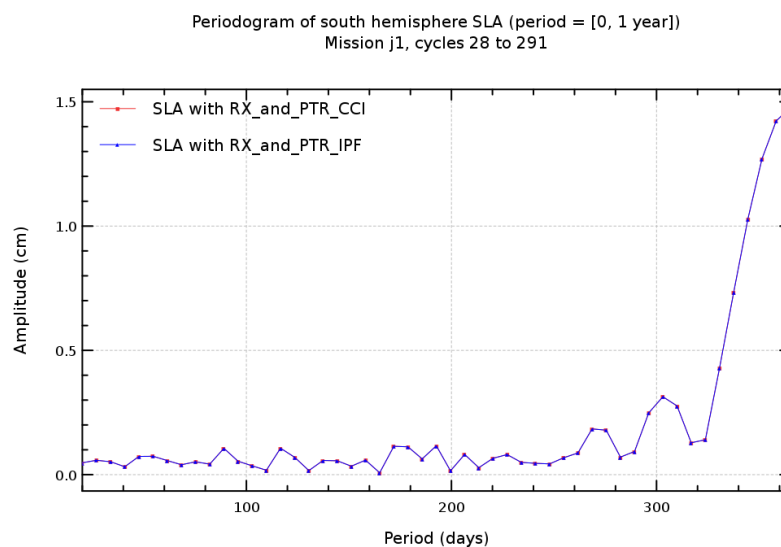
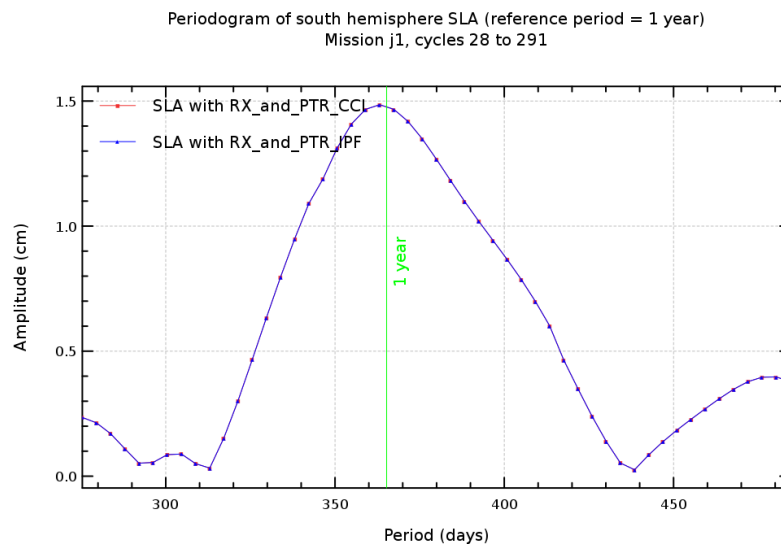
Diagnostic A206_c (mission j1)

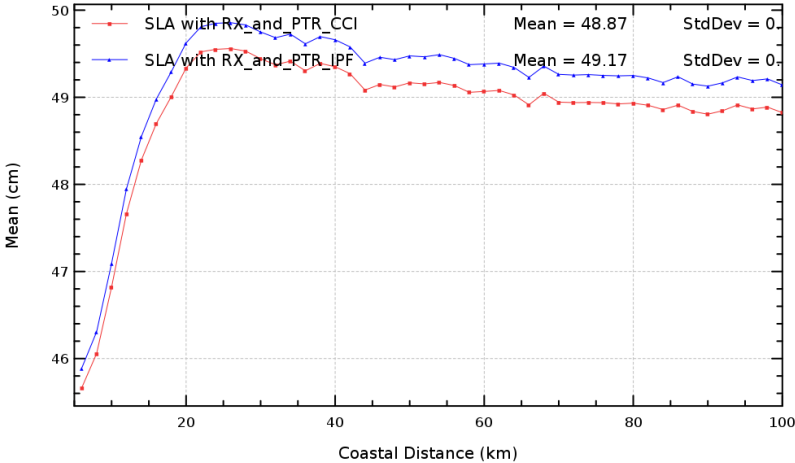
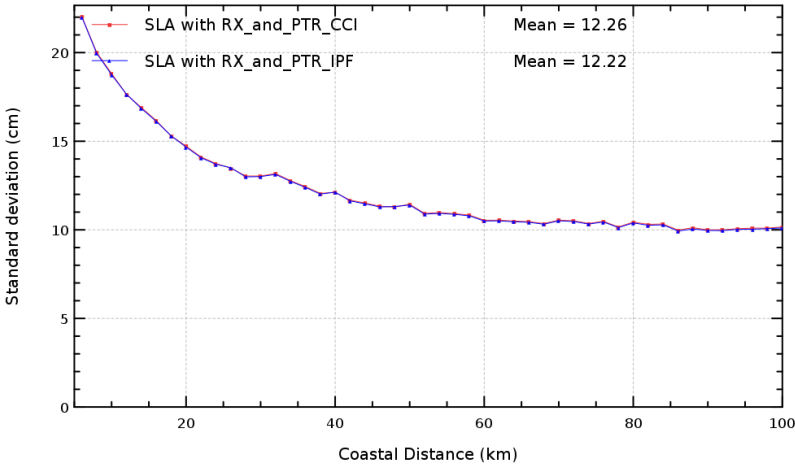
Name : Periodogram derived from temporal evolution of Sea Level Anomaly (SLA)

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 type : Global internal analyses	Diagnostic A207 (mission en)	
	Name : Sea Level Anomaly (SLA) versus coastal distance	
	Input data : Along track SLA	
	Description : Mean and standard deviation of SLA - computed by using successively both altimetric components - are plotted in function of coastal distances between 0 and 100 km.	
	<div>Global MSL Mission en, cycles 10 to 84</div>  <div>Global MSL Mission en, cycles 10 to 84</div> 	

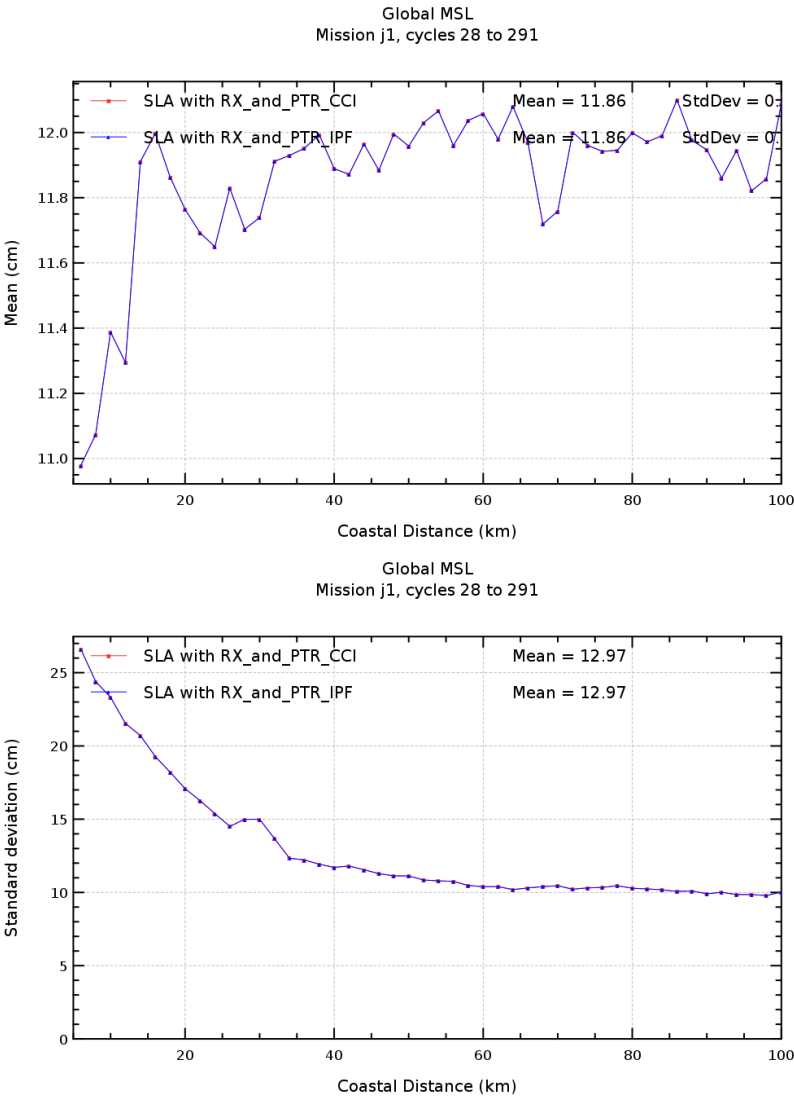
Diagnostic A207 (mission j1)

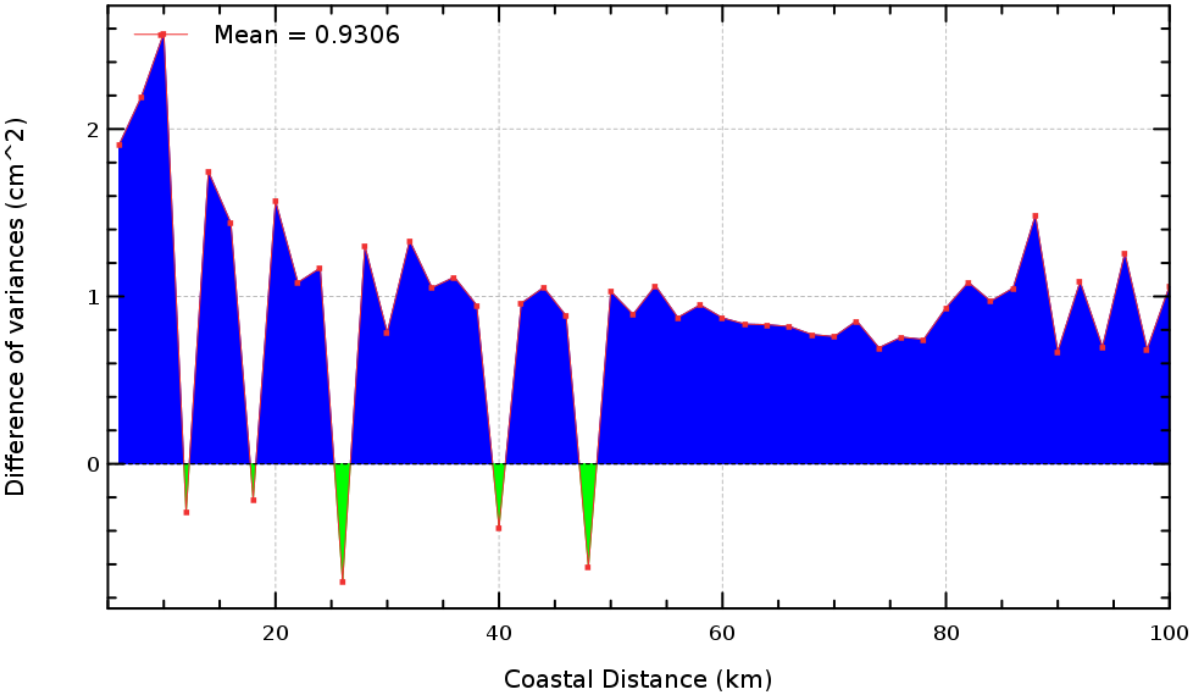
Name : Sea Level Anomaly (SLA) versus coastal distance

Input data : Along track SLA

Description : Mean and standard deviation of SLA - computed by using successively both altimetric components - are plotted in function of coastal distances between 0 and 100 km.

Diagnostic type : Global internal analyses



Diagnostic type : Global internal analyses	Diagnostic A208 (mission en)
	Name : Sea Level Anomaly (SLA) differences versus coastal distance
	Input data : Along track SLA
	Description : The differences of SLA variances - computed by using successively both altimetric components - are plotted in function of coastal distances between 0 and 100 km.
	<div>VAR(SLA with RX_and_PTR_CCI) - VAR(SLA with RX_and_PTR_IPF) Mission en, cycles 10 to 84</div> 

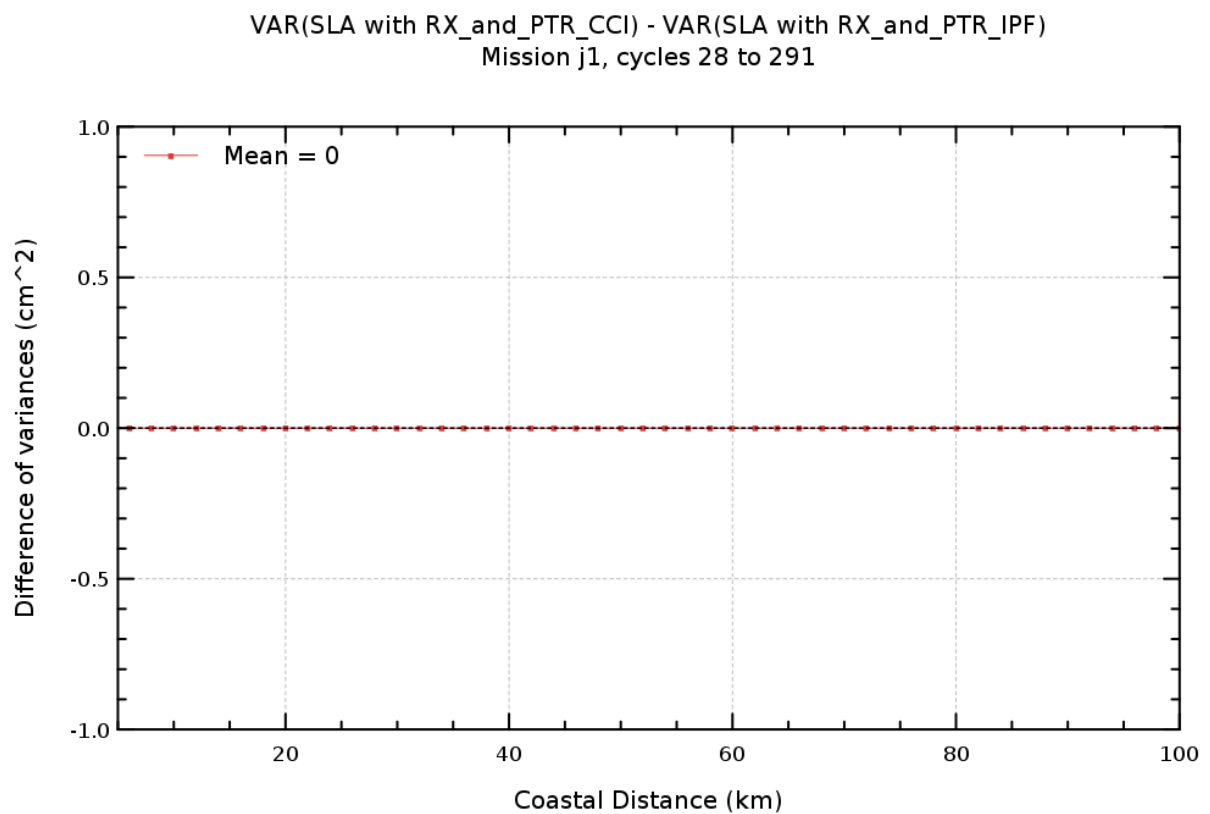
Diagnostic A208 (mission j1)

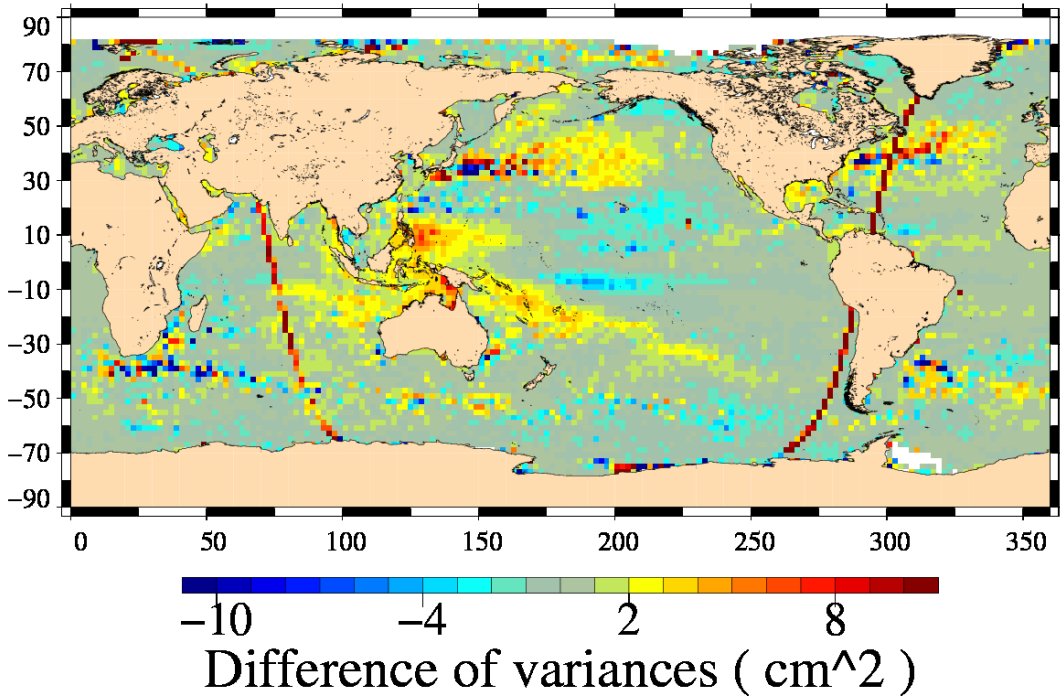
Name : Sea Level Anomaly (SLA) differences versus coastal distance

Input data : Along track SLA

Description : The differences of SLA variances - computed by using successively both altimetric components - are plotted in function of coastal distances between 0 and 100 km.

Diagnostic type : Global internal analyses



Diagnostic type : Global internal analyses	Diagnostic A209 (mission en)	
	Name : Differences between maps of SLA (3)	
	Input data : Along track SLA	
	Description : The differences between maps of SLA are calculated from the SLA differences (mean, standard deviation) using successively both altimetric components in the SLA calculation.	
	<div>VAR(SLA with RX_and_PTR_CCI) – VAR(SLA with RX_and_PTR_IPF)</div> <div>Mission en, cycles 10 to 84</div> <div></div>	

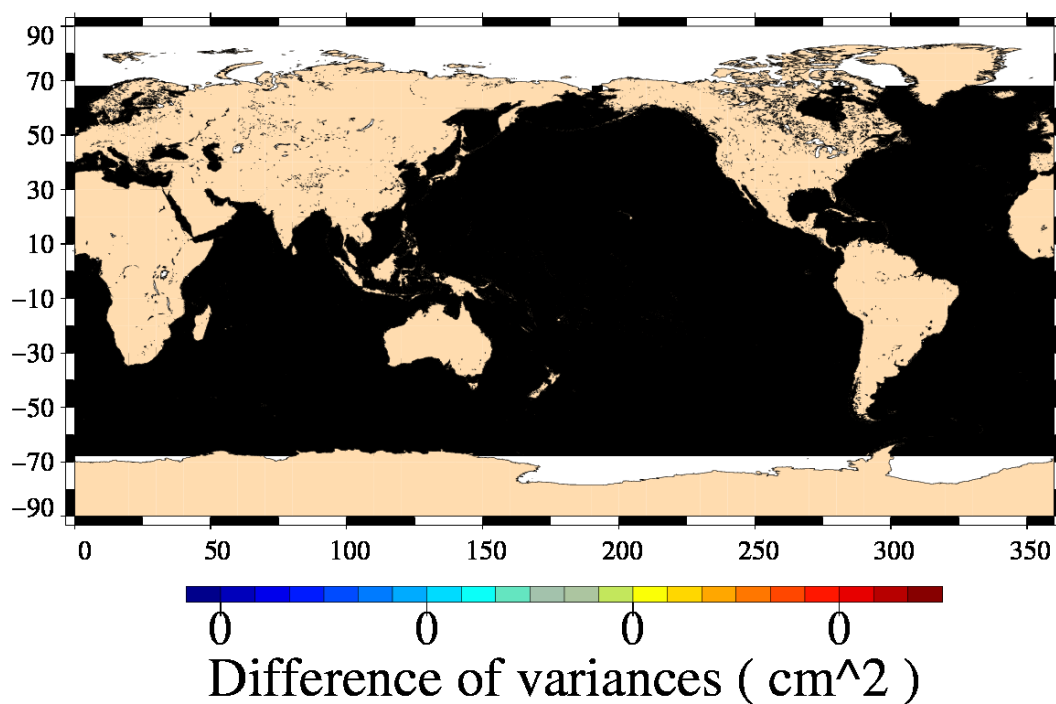
Diagnostic A209 (mission j1)

Name : Differences between maps of SLA (3)

Input data : Along track SLA

Description : The differences between maps of SLA are calculated from the SLA differences (mean, standard deviation) using successively both altimetric components in the SLA calculation.

$\text{VAR}(\text{SLA with RX_and_PTR_CCI}) - \text{VAR}(\text{SLA with RX_and_PTR_IPF})$
Mission j1, cycles 28 to 291



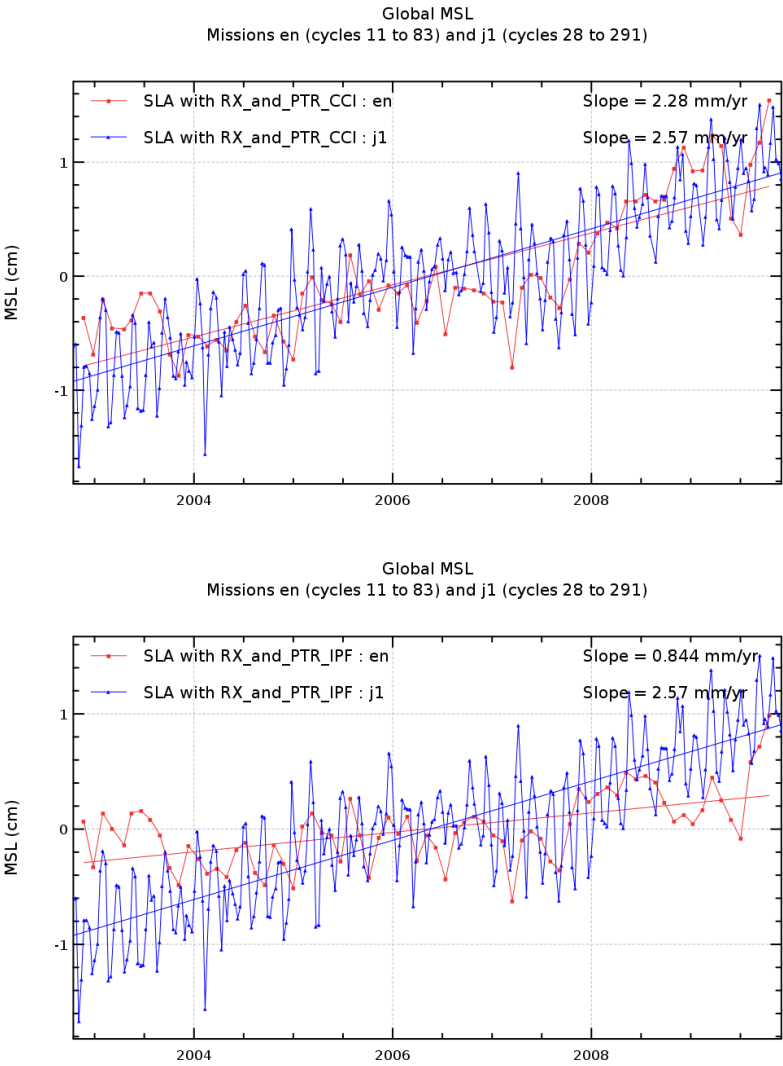
Diagnostic type : Global internal analyses

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.



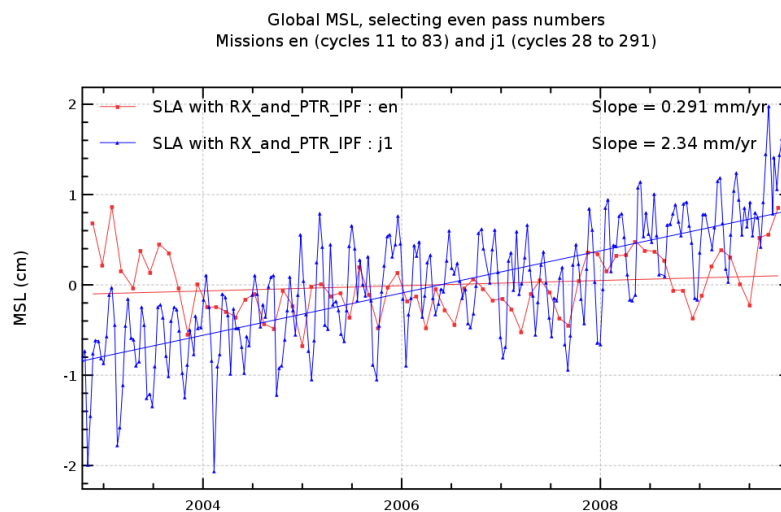
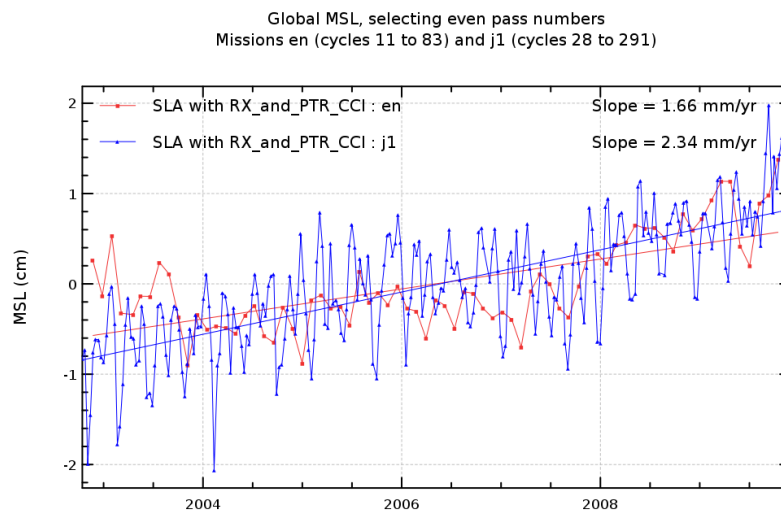
Diagnostic B201_b

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



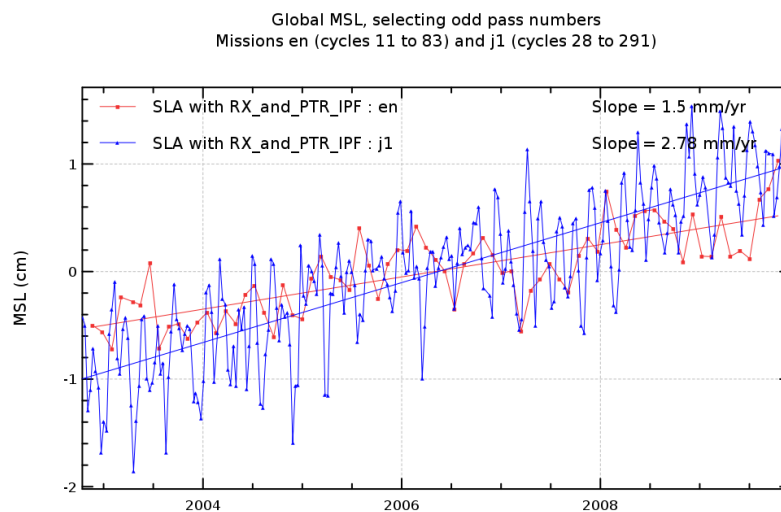
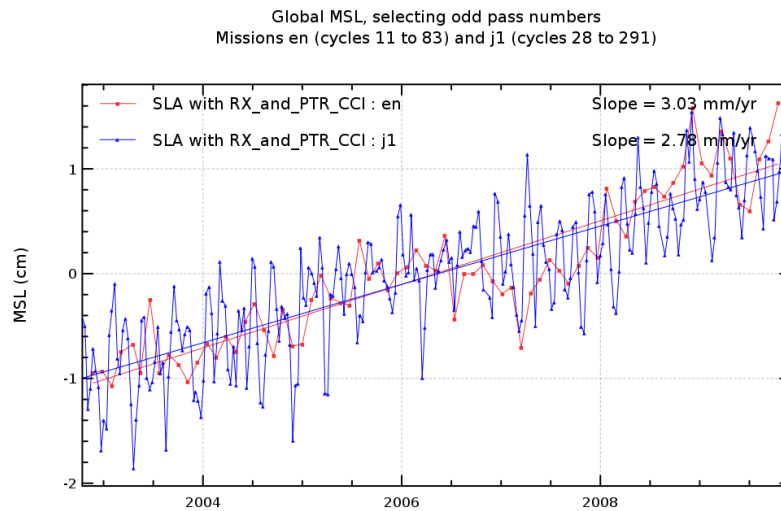
Diagnostic B201_c

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



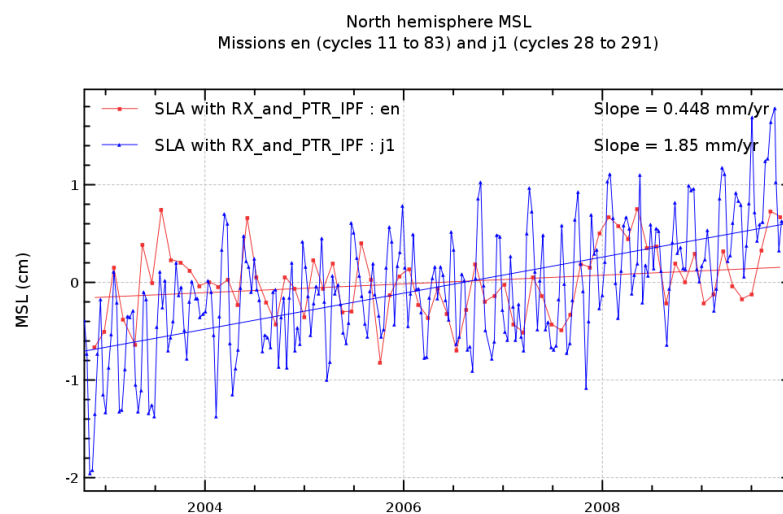
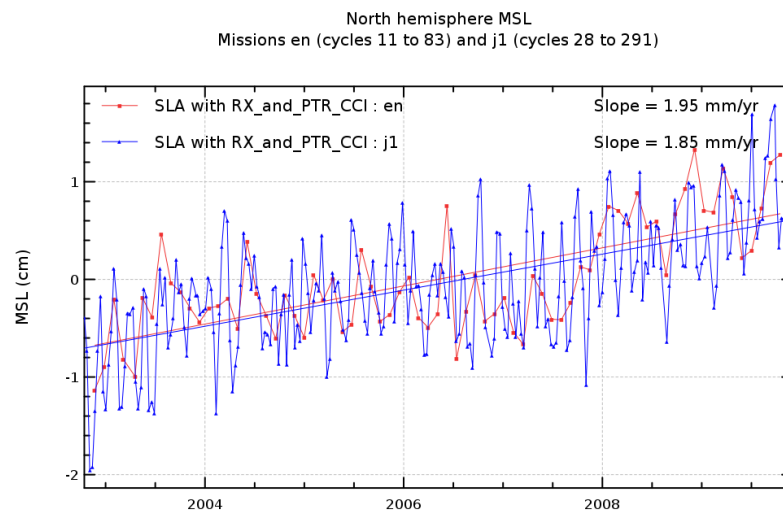
Diagnostic B201_d

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



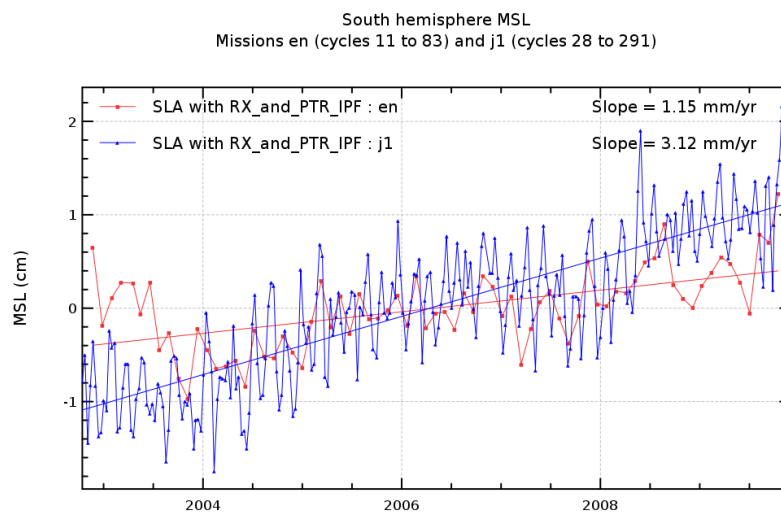
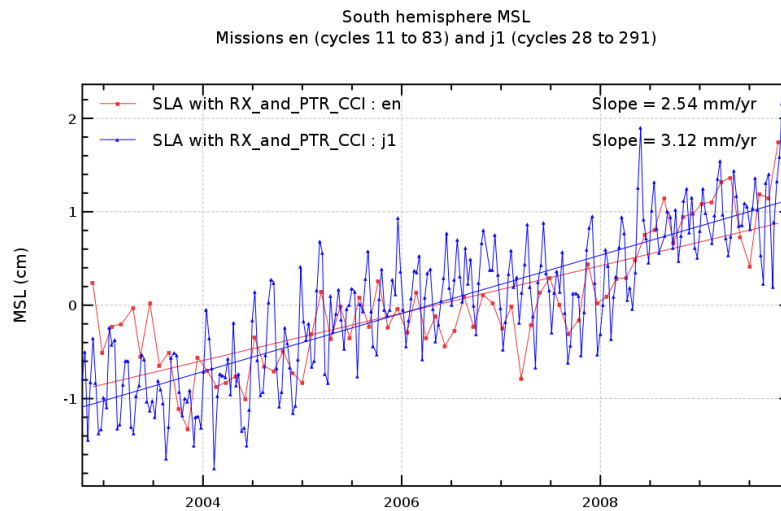
Diagnostic B201_e

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

Input data : Along track SLA

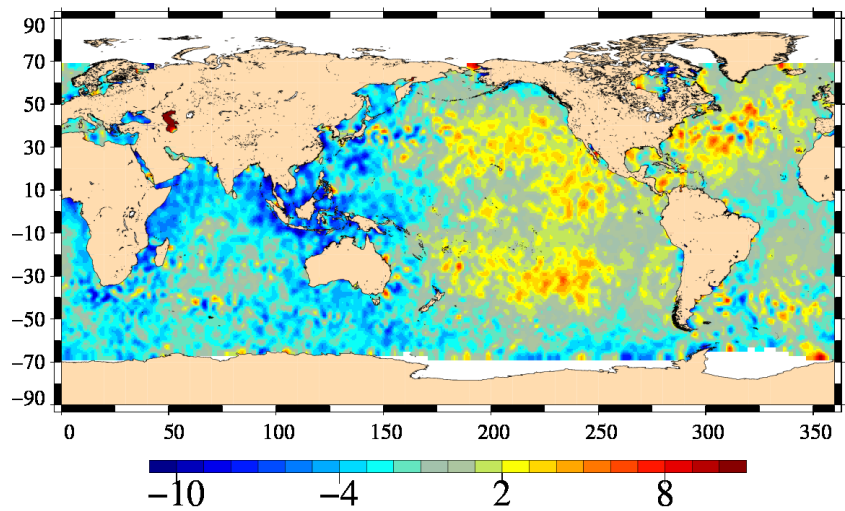
Description : Temporal evolution of SLA statistics (mean, standard deviation) of 2 or more missions are computed over the same period as longest as possible using successively both components in the SLA calculation. This can be done globally, or separating in ascending and descending or in northern and 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

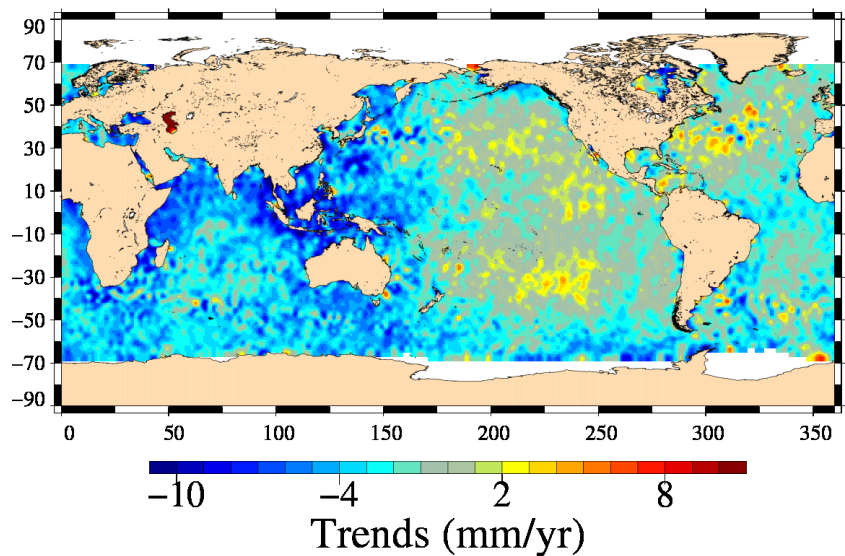


Diagnostic B202_a
Name : Differences between maps of Sea Level Anomaly (SLA) for 2 missions over the same period
Input data : Along track SLA
Description : The differences between maps of SLA (mean, variance or slope) derived from 2 altimetric missions are computed over the same period (as long as possible) 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 RX_and_PTR_CCI differences : en – j1
Missions en (cycles 11 to 83) and j1 (cycles 28 to 291)



Trends (mm/yr)
SLA with RX_and_PTR_IPF differences : en – j1
Missions en (cycles 11 to 83) and j1 (cycles 28 to 291)



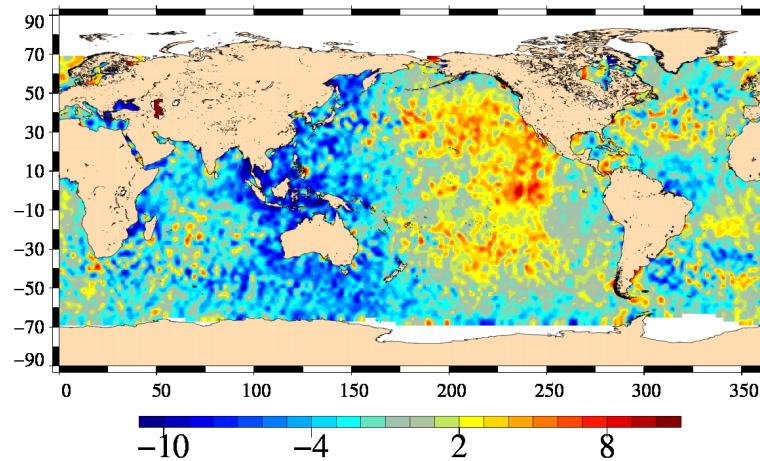
Diagnostic B202_b

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

Input data : Along track SLA

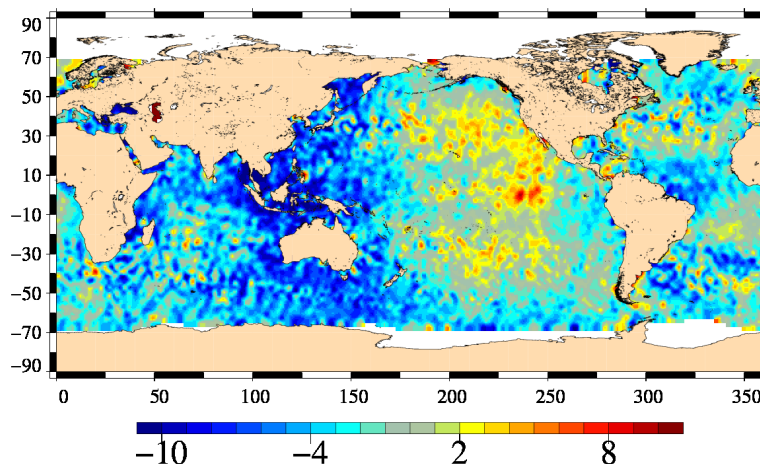
Description : The differences between maps of SLA (mean, variance or slope) derived from 2 altimetric missions are computed over the same period (as long as possible) using successively both altimetric components in the SLA calculation. Maps are calculated globally, they can be also calculated separating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

SLA with RX_and_PTR_CCI differences : en – j1, even pass numbers
Missions en (cycles 11 to 83) and j1 (cycles 28 to 291)



Trends (mm/yr)

SLA with RX_and_PTR_IPF differences : en – j1, even pass numbers
Missions en (cycles 11 to 83) and j1 (cycles 28 to 291)



Trends (mm/yr)

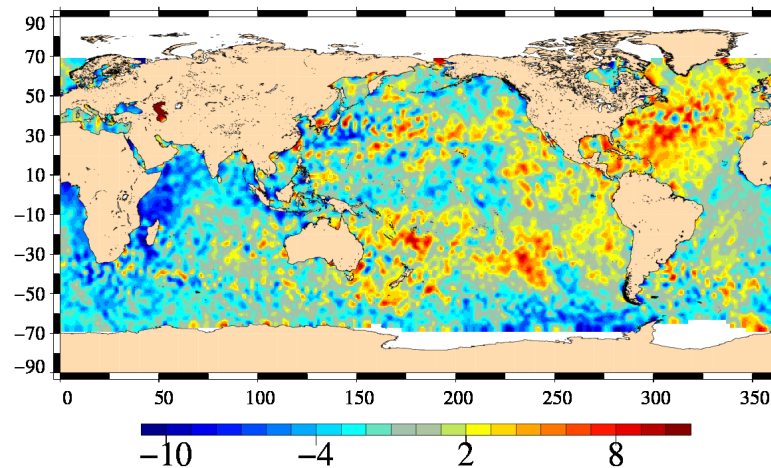
Diagnostic B202_c

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 RX_and_PTR_CCI differences : en – j1, odd pass numbers
Missions en (cycles 11 to 83) and j1 (cycles 28 to 291)



Trends (mm/yr)
SLA with RX_and_PTR_IPF differences : en – j1, odd pass numbers
Missions en (cycles 11 to 83) and j1 (cycles 28 to 291)

