

## SSBs comparison : 2012 versus GdrD

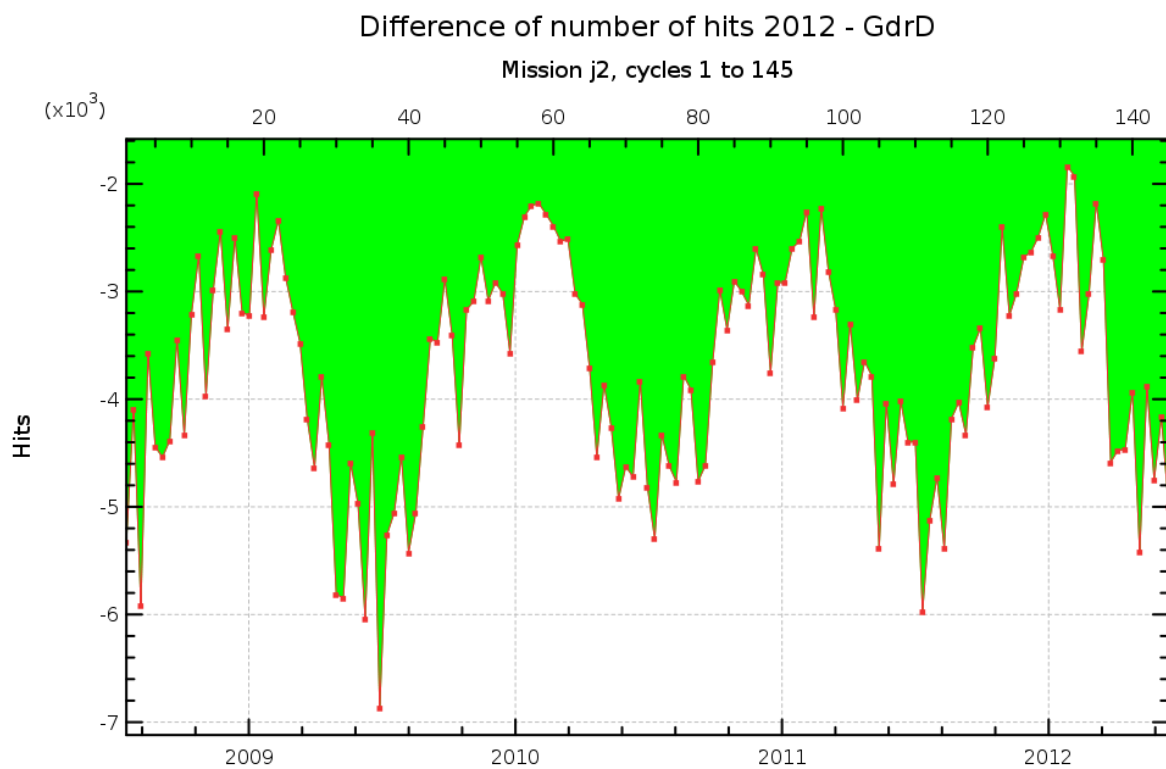
Study variable	<b>2012</b>
Reference variable	<b>GdrD</b>
Missions	Jason-2 ( <i>j2</i> )
Period	[21377, 22815]

Creation date : 2012/12/17

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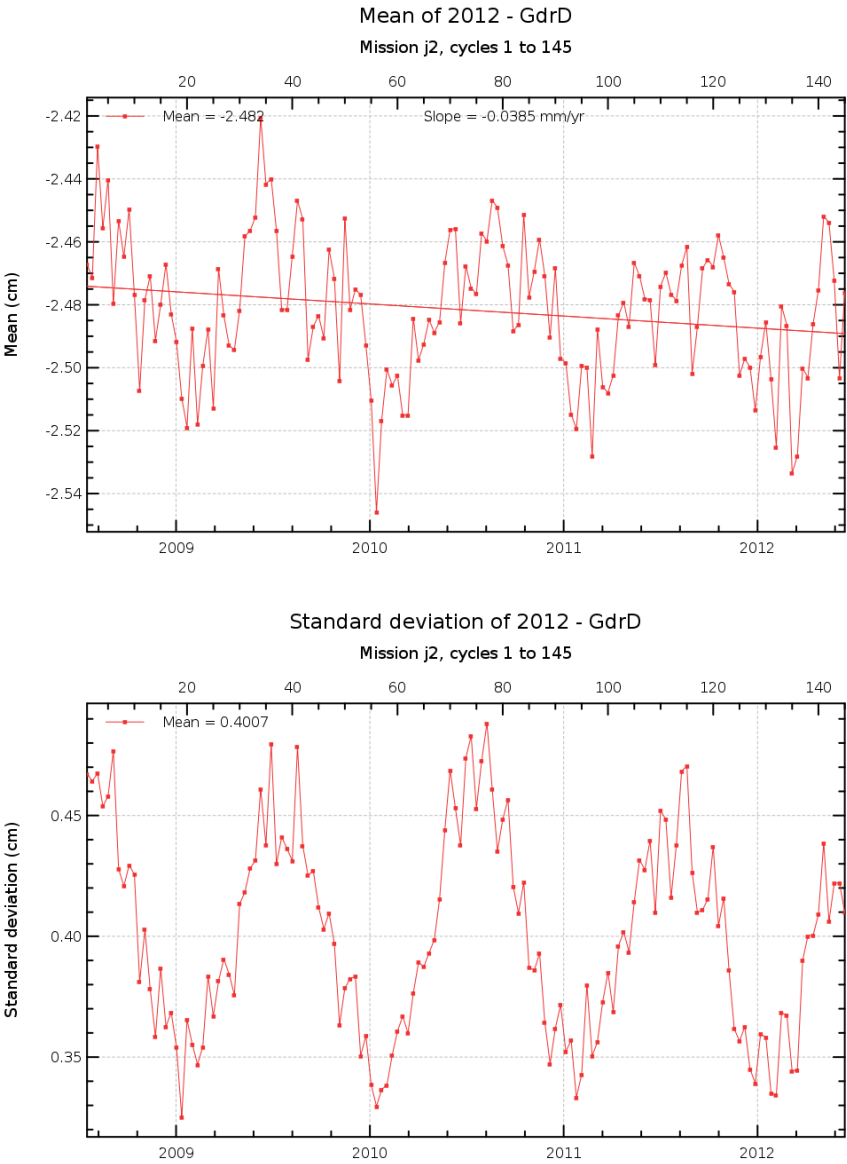


Diagnostic A001 (mission j2)

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.

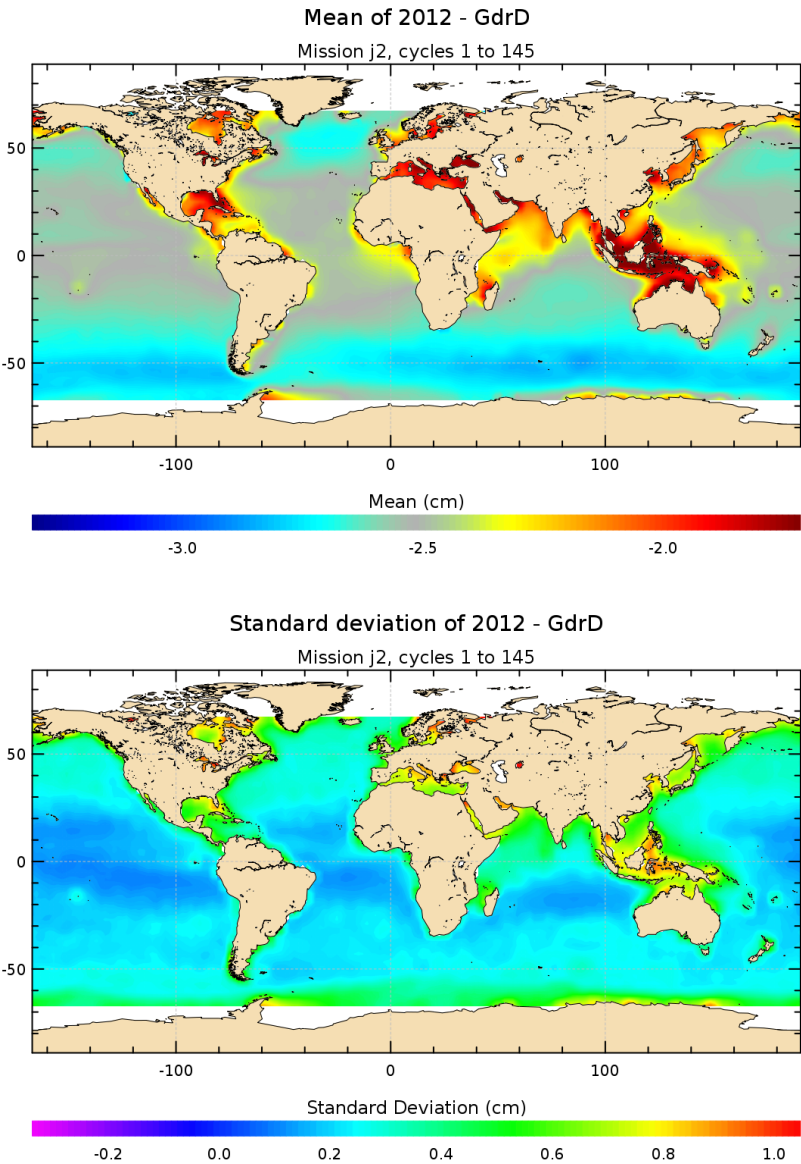


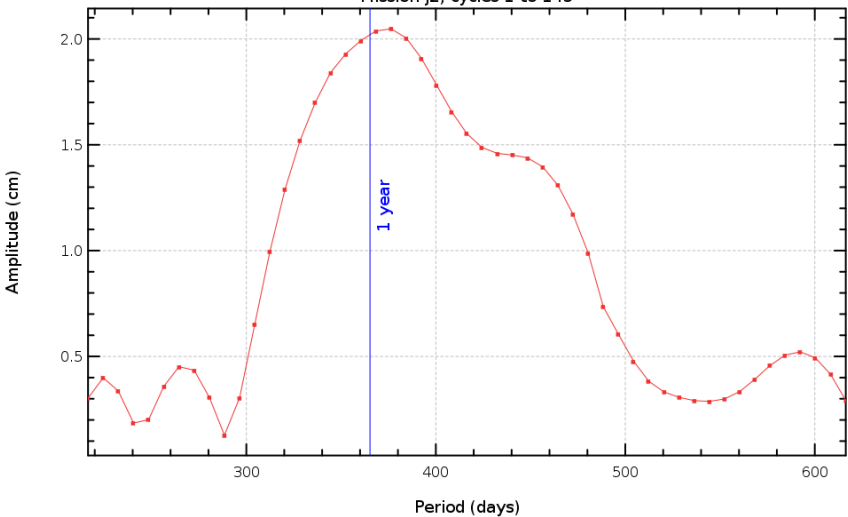
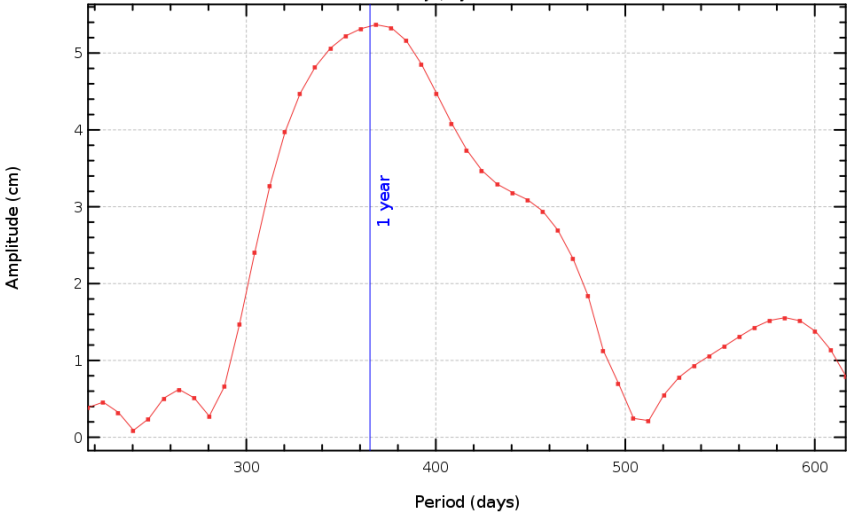
Diagnostic A002 (mission j2)

**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 A003_a (mission j2)	
Name : Periodogram derived from temporal evolution of altimetric component differences	
Input data : Along-track altimetric components	
<p><b>Description :</b> 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.</p>	
<div><div><p>Periodogram of the mean of 2012 - GdrD (reference period = 1 year)</p><p>(<math>\times 10^{-2}</math>)</p><p>Mission j2, cycles 1 to 145</p><p>Amplitude (cm)</p><p>Period (days)</p></div><div><p>Periodogram of the standard deviation of 2012 - GdrD (reference period = 1 year)</p><p>(<math>\times 10^{-2}</math>)</p><p>Mission j2, cycles 1 to 145</p><p>Amplitude (cm)</p><p>Period (days)</p></div></div>	

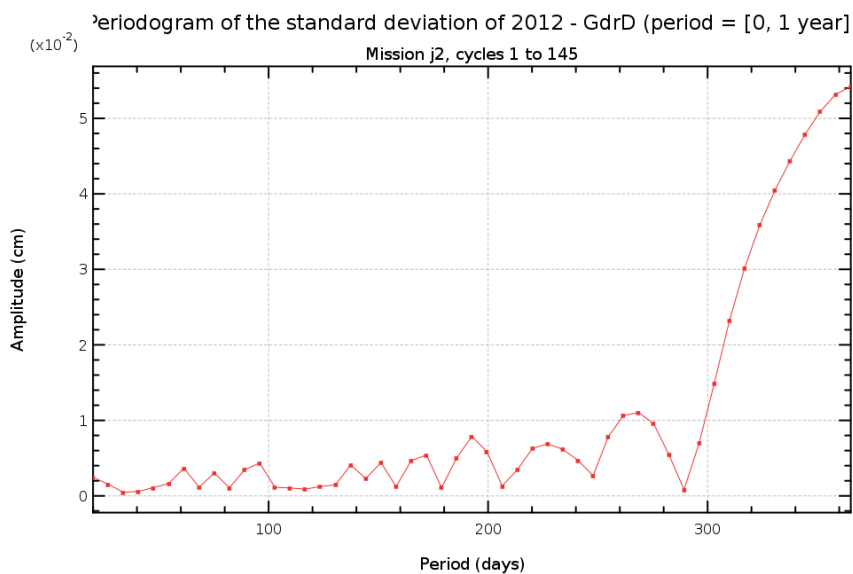
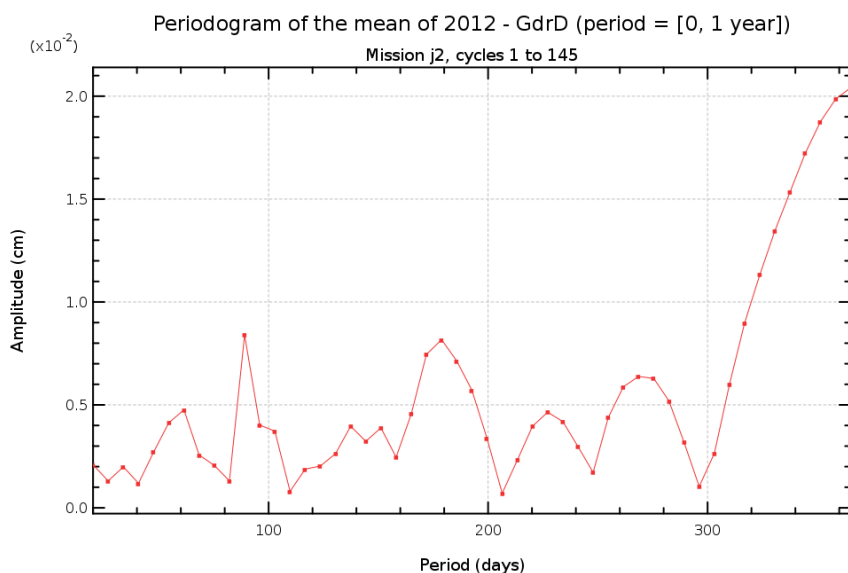
## Diagnostic A003\_b (mission j2)

**Name :** Periodogram derived from temporal evolution of altimetric component differences

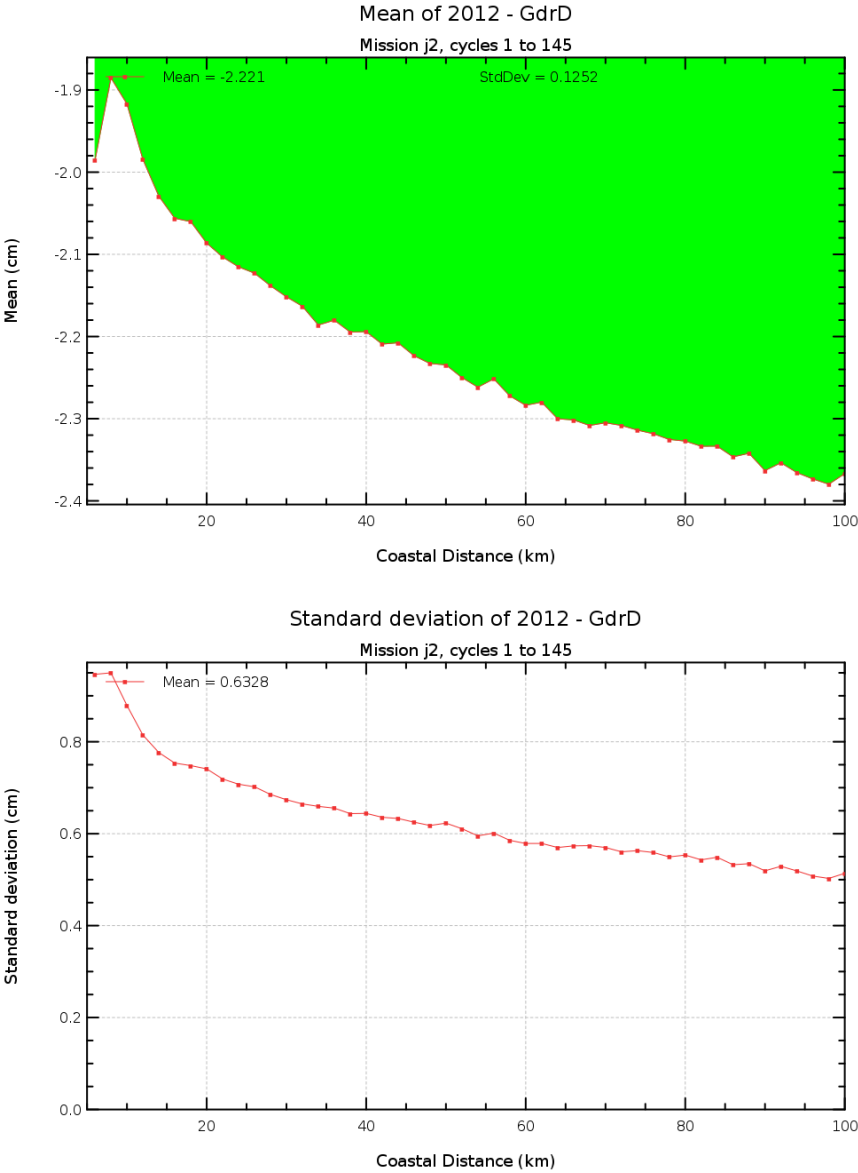
**Input data :** Along-track altimetric components

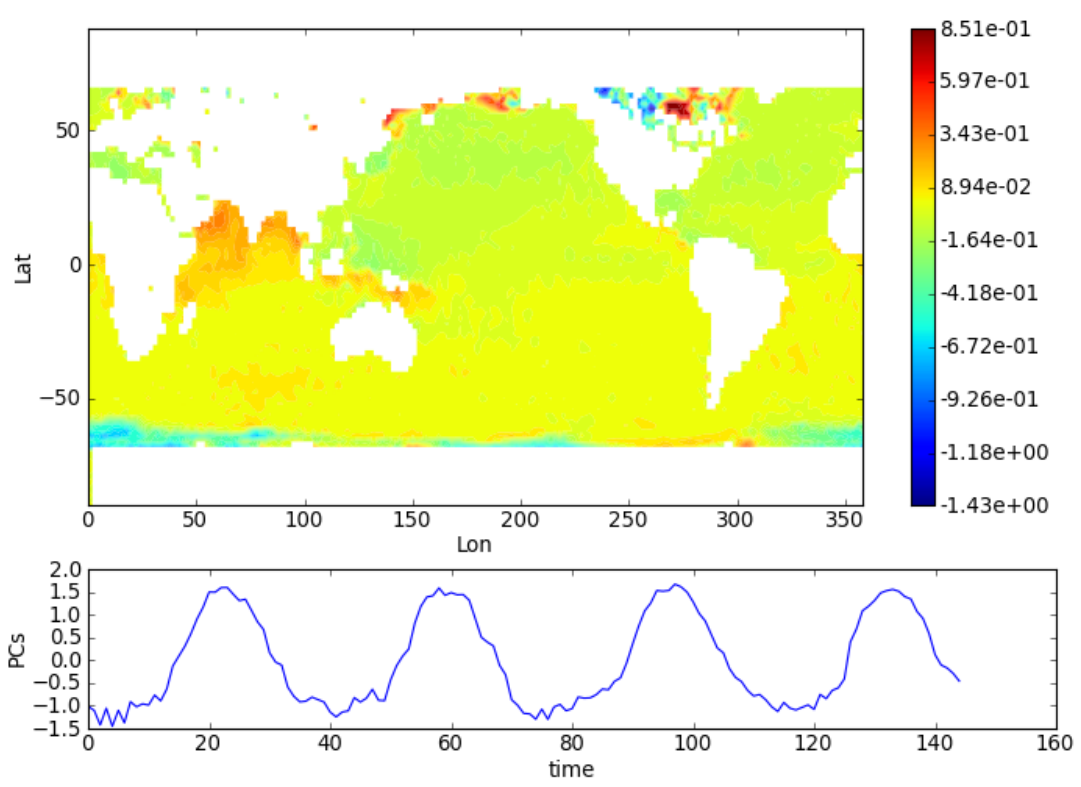
**Description :** The periodogram derived from temporal and global altimetric component differences is calculated from cycle by cycle monitoring of altimetric component differences (derived from diagnostic A001). It is calculated from the mean or the variance differences. The Periodogram can be calculated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

Diagnostic type : Global internal analyses



Diagnostic A004 (mission j2)	
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 A005_a (mission j2)	
	Name : EOF Decomposition of Differences	
	Input data : Along-track altimetric components	
	Description : The differences between map of SLA (mean) are calculated from the mean SLA maps (per cycle) using successively both altimetric components in the SLA calculation. The maps of the differences are analyzed through an Empirical Orthogonal Functions (EOF) decomposition.	
	<div>EOF #1-Mean- Explained Variance=13.0%</div> 	

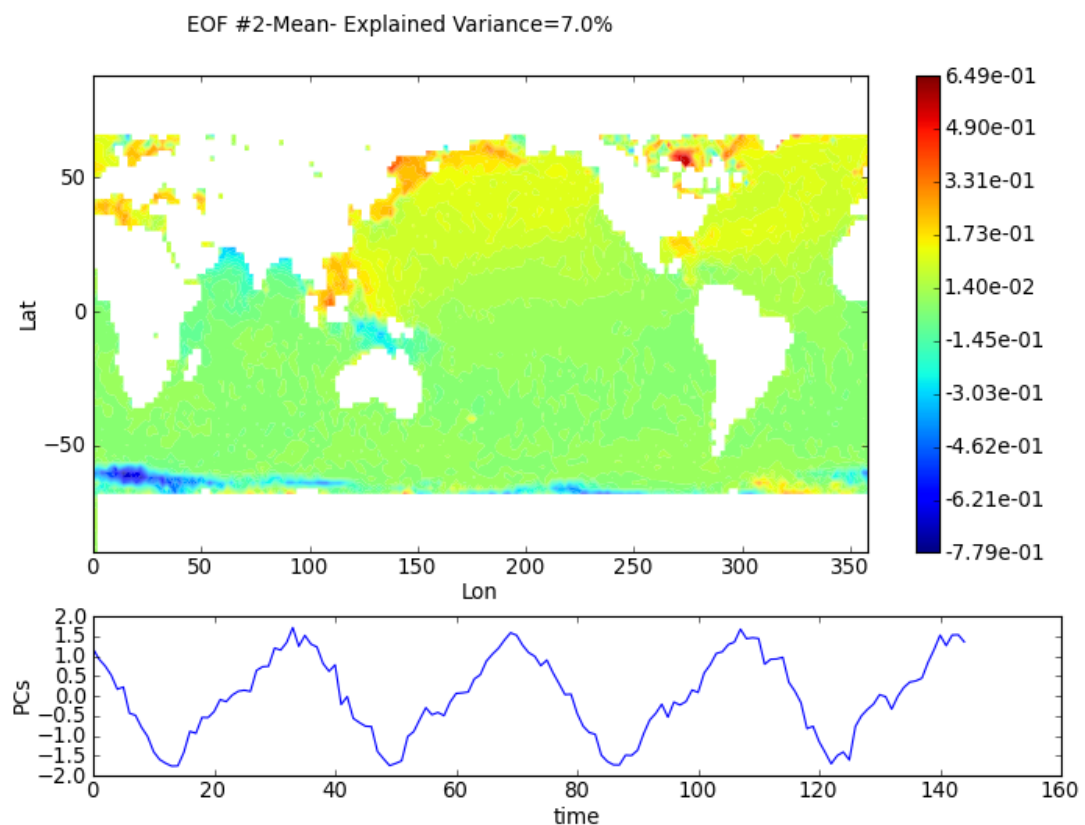
## Diagnostic A005\_b (mission j2)

**Name :** EOF Decomposition of Differences

**Input data :** Along-track altimetric components

**Description :** The differences between map of SLA (mean) are calculated from the mean SLA maps (per cycle) using successively both altimetric components in the SLA calculation. The maps of the differences are analyzed through an Empirical Orthogonal Functions (EOF) decomposition.

Diagnostic type : Global internal analyses



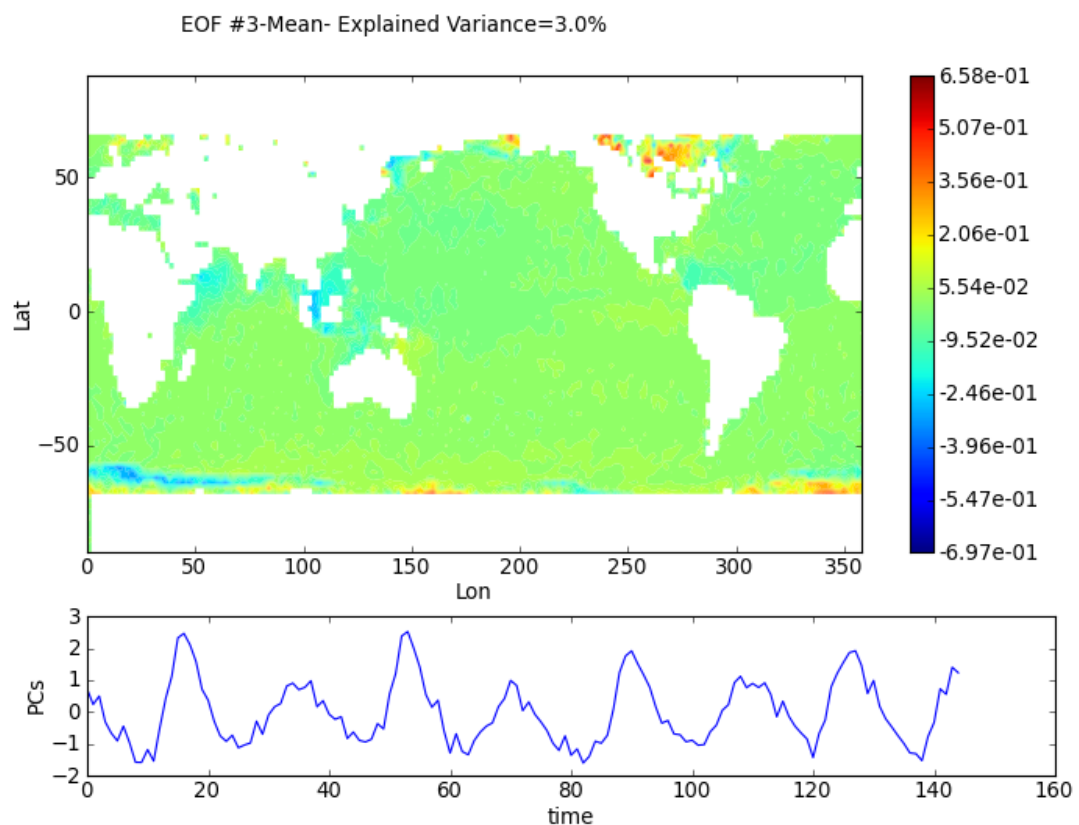
## Diagnostic A005\_c (mission j2)

**Name :** EOF Decomposition of Differences

**Input data :** Along-track altimetric components

**Description :** The differences between map of SLA (mean) are calculated from the mean SLA maps (per cycle) using successively both altimetric components in the SLA calculation. The maps of the differences are analyzed through an Empirical Orthogonal Functions (EOF) decomposition.

Diagnostic type : Global internal analyses



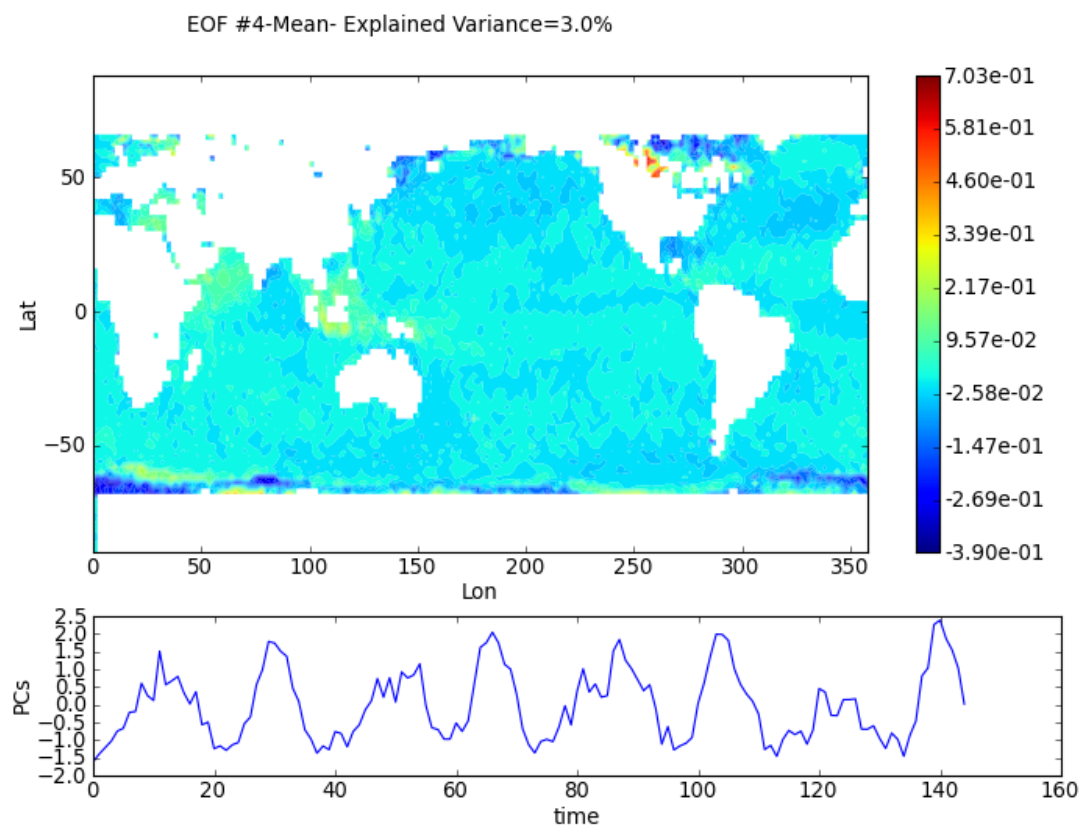
## Diagnostic A005\_d (mission j2)

**Name :** EOF Decomposition of Differences

**Input data :** Along-track altimetric components

**Description :** The differences between map of SLA (mean) are calculated from the mean SLA maps (per cycle) using successively both altimetric components in the SLA calculation. The maps of the differences are analyzed through an Empirical Orthogonal Functions (EOF) decomposition.

Diagnostic type : Global internal analyses



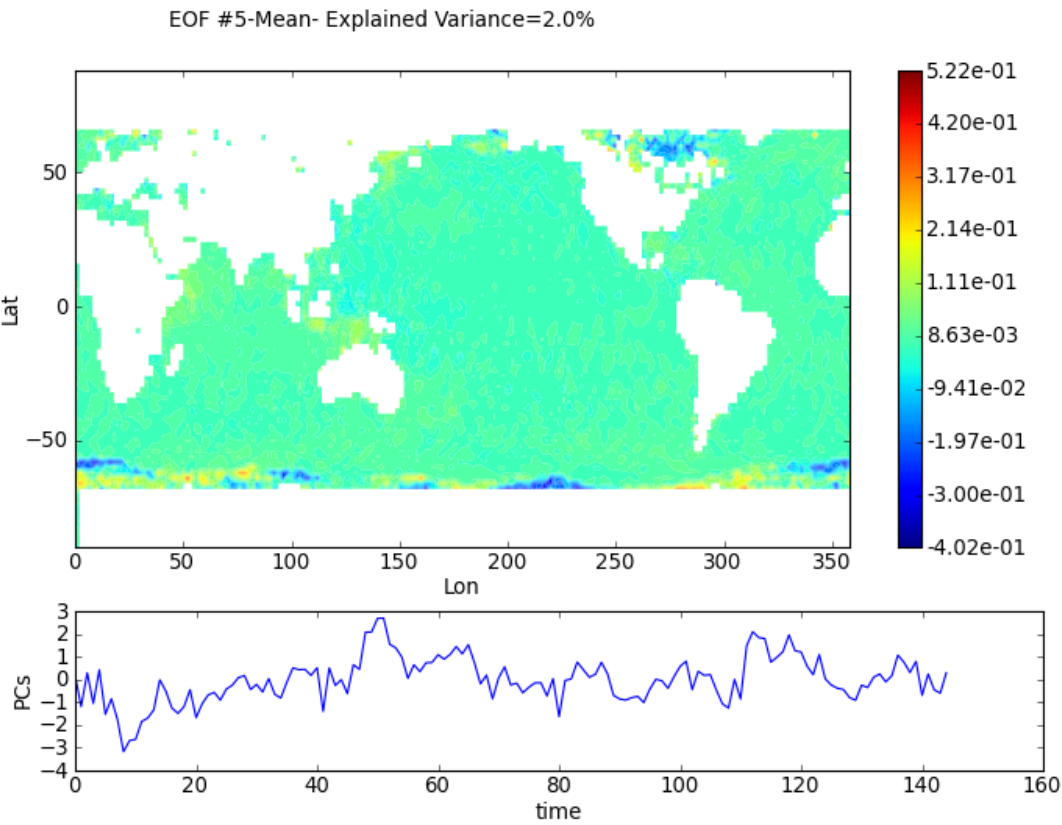
## Diagnostic A005\_e (mission j2)

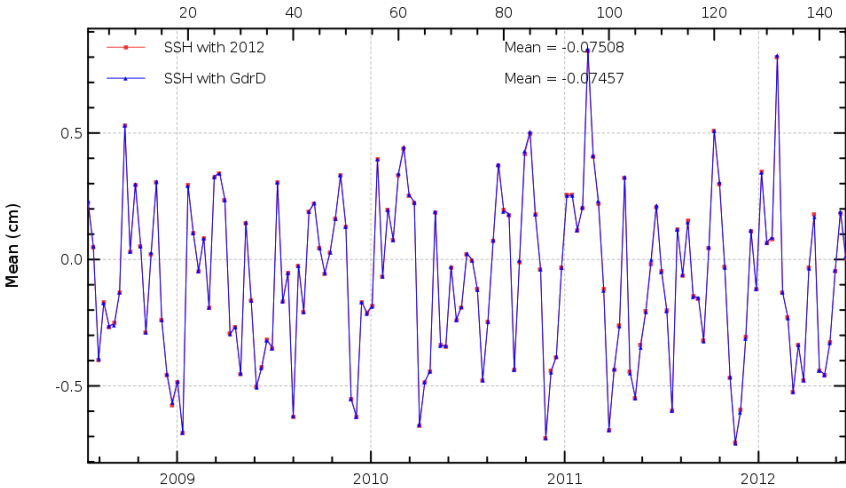
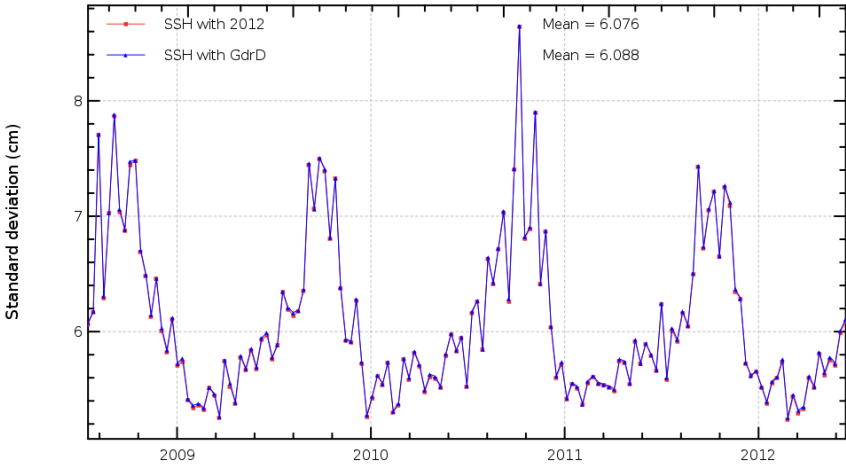
**Name :** EOF Decomposition of Differences

**Input data :** Along-track altimetric components

**Description :** The differences between map of SLA (mean) are calculated from the mean SLA maps (per cycle) using successively both altimetric components in the SLA calculation. The maps of the differences are analyzed through an Empirical Orthogonal Functions (EOF) decomposition.

Diagnostic type : Global internal analyses



Diagnostic A101_a (mission j2)	
Name : Temporal evolution of SSH crossovers	
Input data : Sea Surface Height (SSH) crossovers	
<p><b>Description :</b> 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 j2, cycles 1 to 145</div><div></div></div><div><div>Standard deviations of SSH crossovers</div><div>Mission j2, cycles 1 to 145</div><div></div></div></div>	

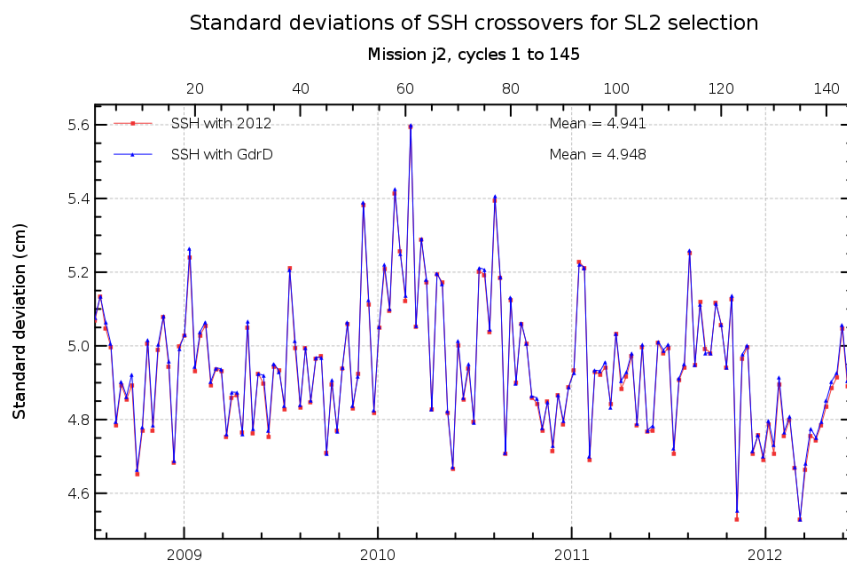
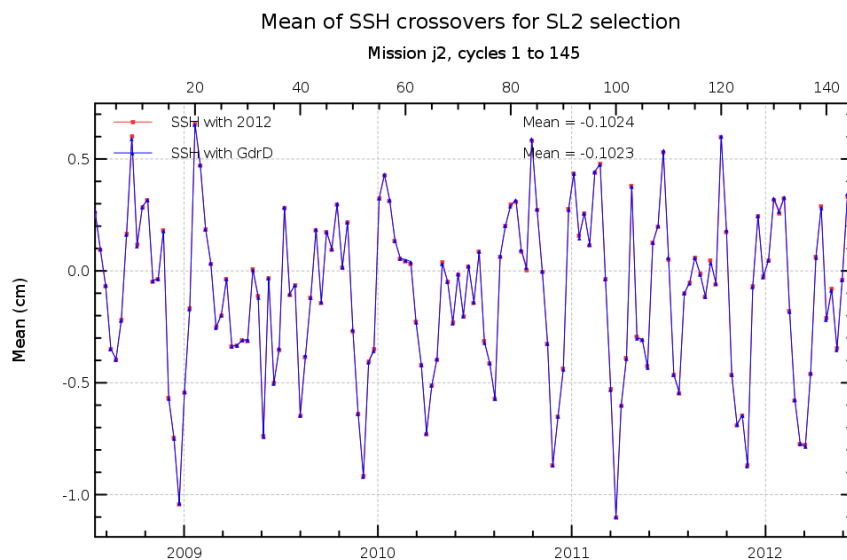
## Diagnostic A101\_b (mission j2)

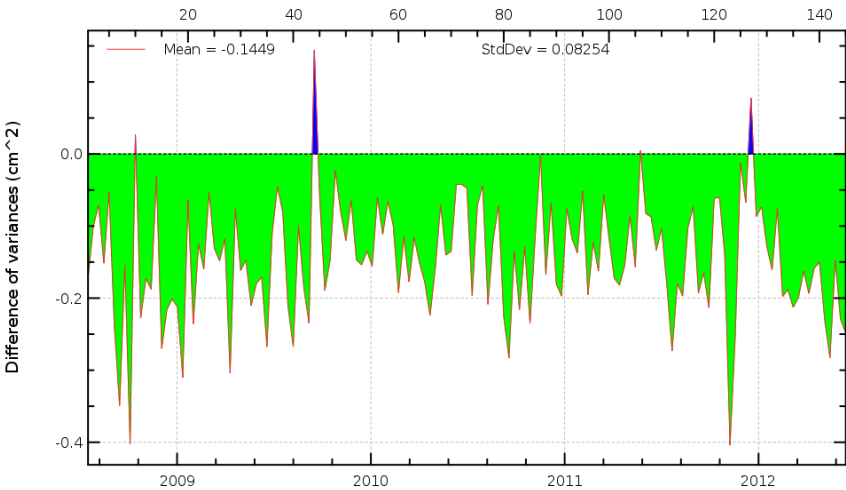
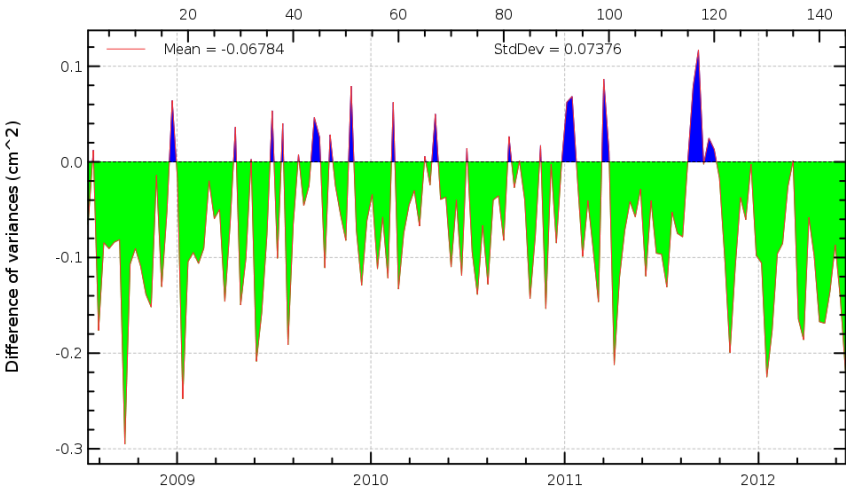
**Name :** Temporal evolution of SSH crossovers

**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 j2)	
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).	
<div>SSH crossovers : VAR(SSH with 2012) - VAR(SSH with GdrD)</div> <div>Mission j2, cycles 1 to 145</div> <div></div> <div>SSH crossovers : VAR(SSH with 2012) - VAR(SSH with GdrD) (SL2)</div> <div>Mission j2, cycles 1 to 145</div> <div></div>	

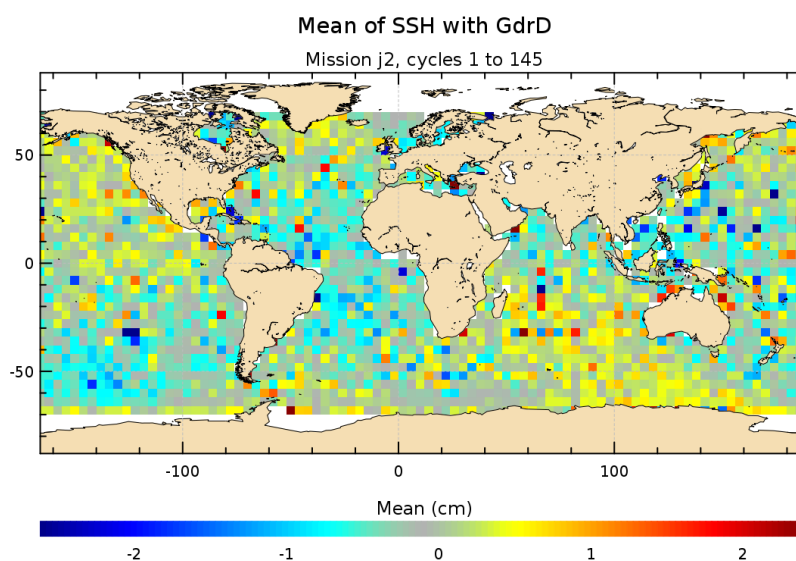
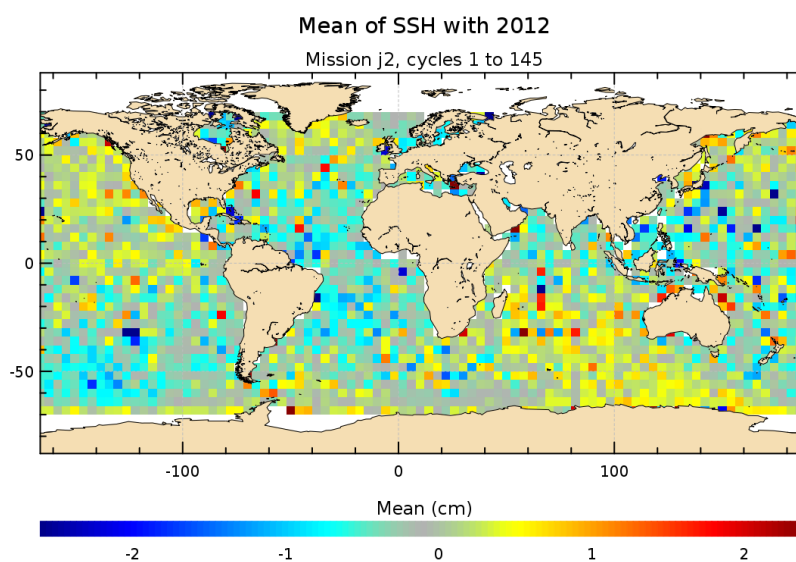
## Diagnostic A103 (mission j2)

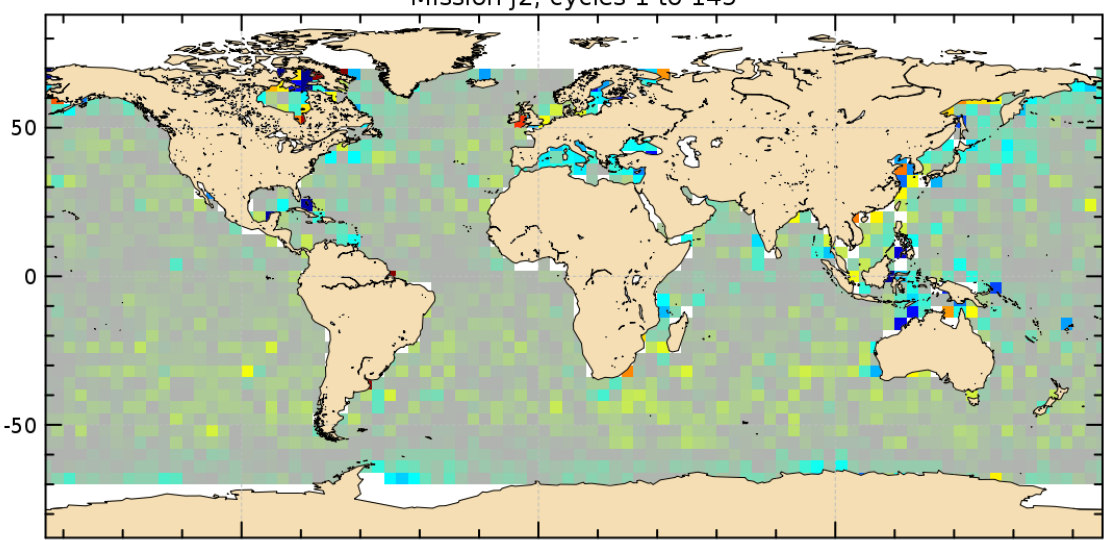
**Name :** Map of SSH crossovers

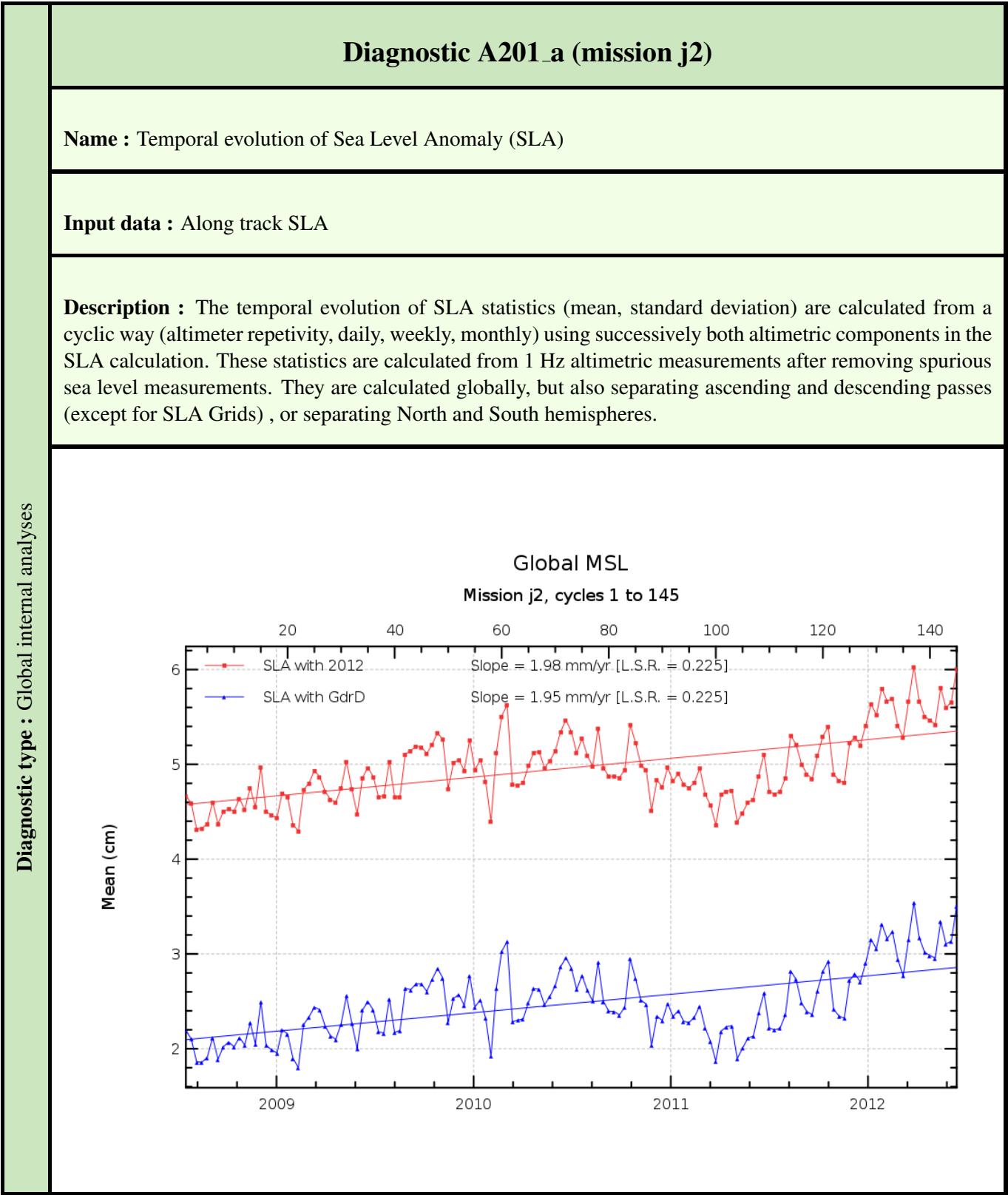
**Input data :** Sea Surface Height (SSH) crossovers

**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



Diagnostic type : Global internal analyses	<b>Diagnostic A104 (mission j2)</b>
	<b>Name :</b> Differences between maps of SSH crossovers
	<b>Input data :</b> Sea Surface Height (SSH) crossovers
	<b>Description :</b> 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><b>VAR(SSH with 2012) - VAR(SSH with GdrD)</b> Mission j2, cycles 1 to 145</p>  <p>SSH crossovers : difference of variances (cm<sup>2</sup>)</p> <p>-4      -2      0      2</p>



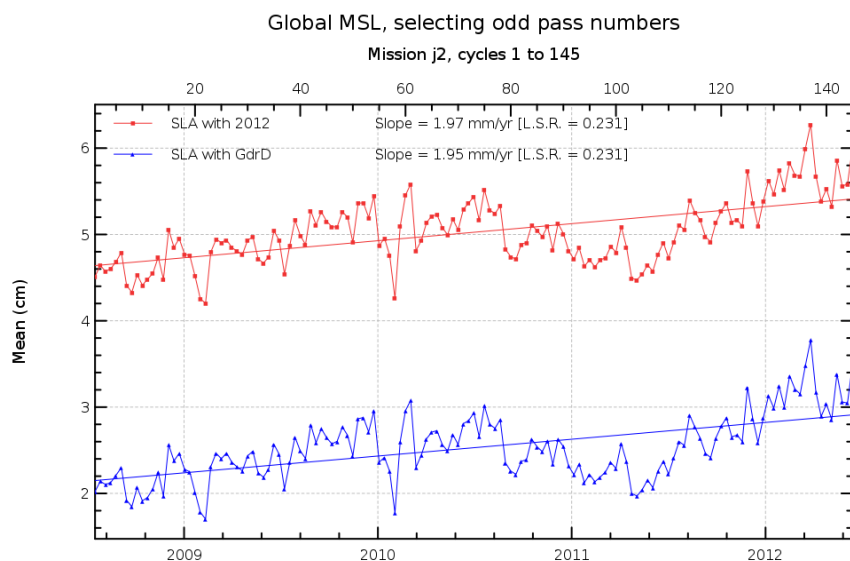
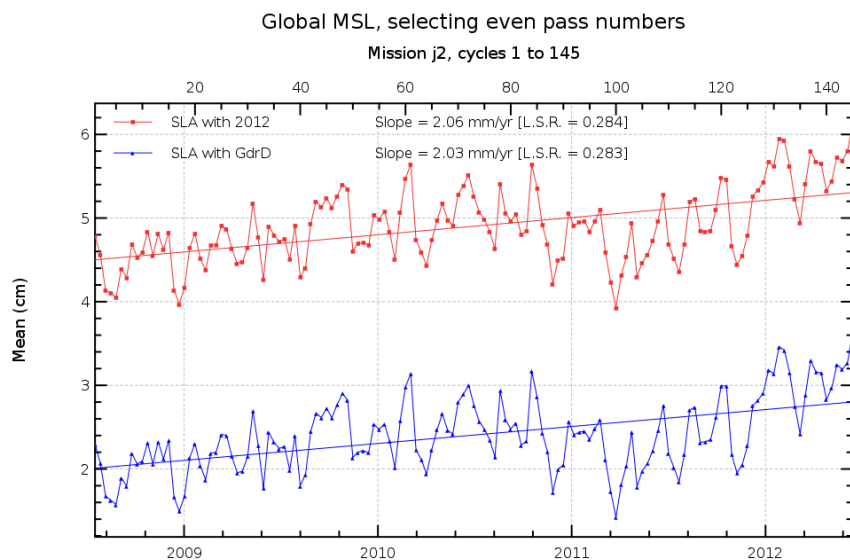
## Diagnostic A201\_b (mission j2)

**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



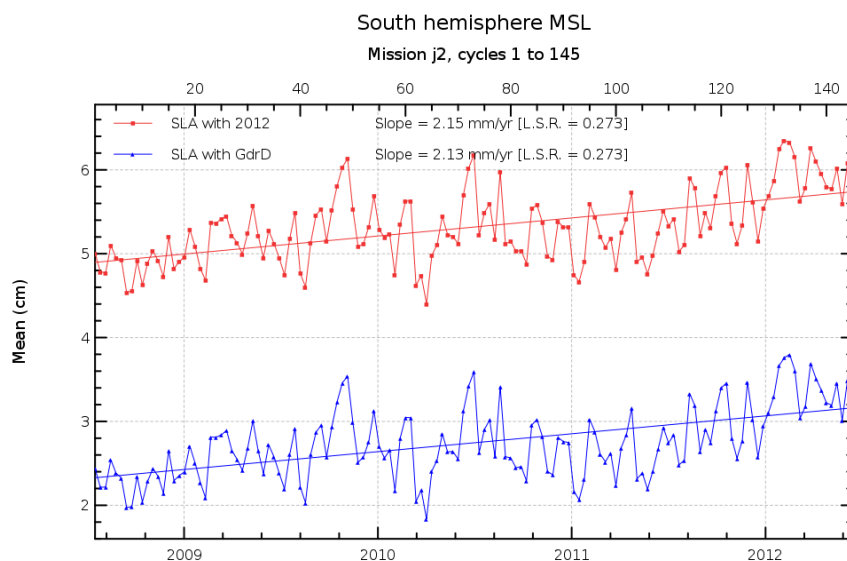
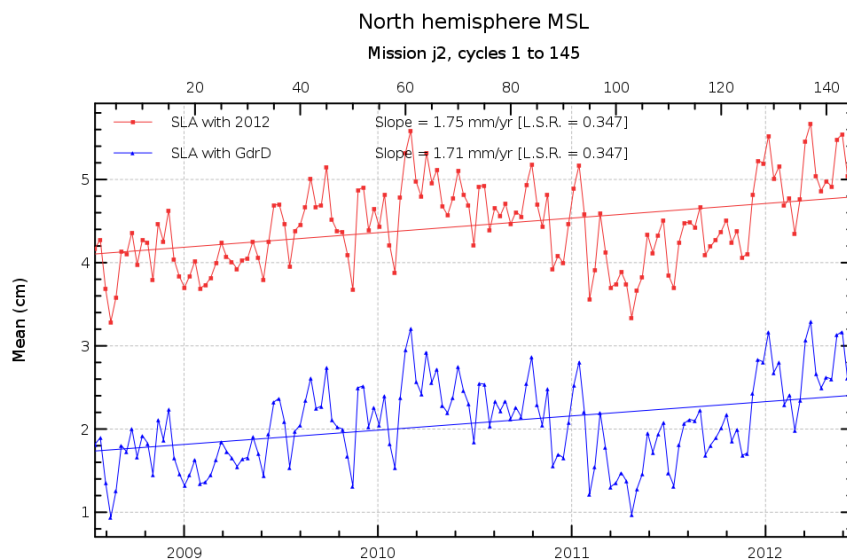
## Diagnostic A201\_c (mission j2)

**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



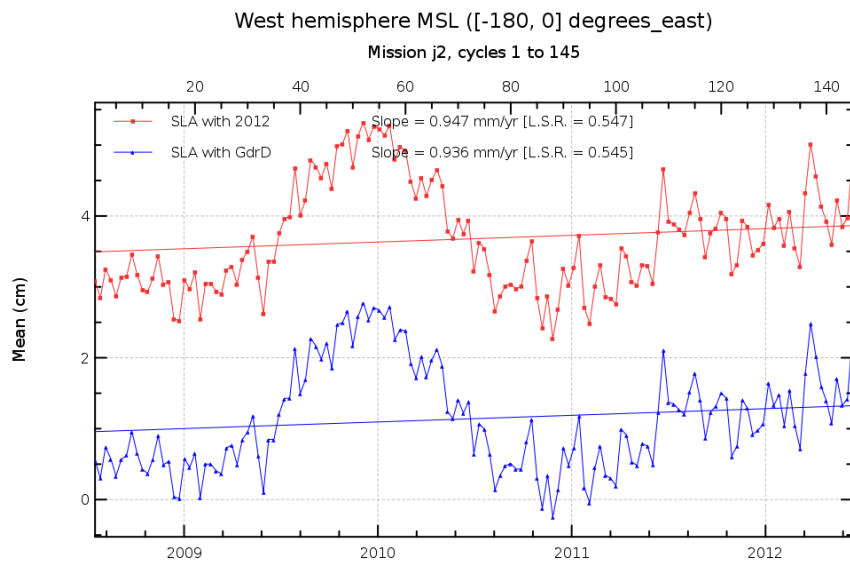
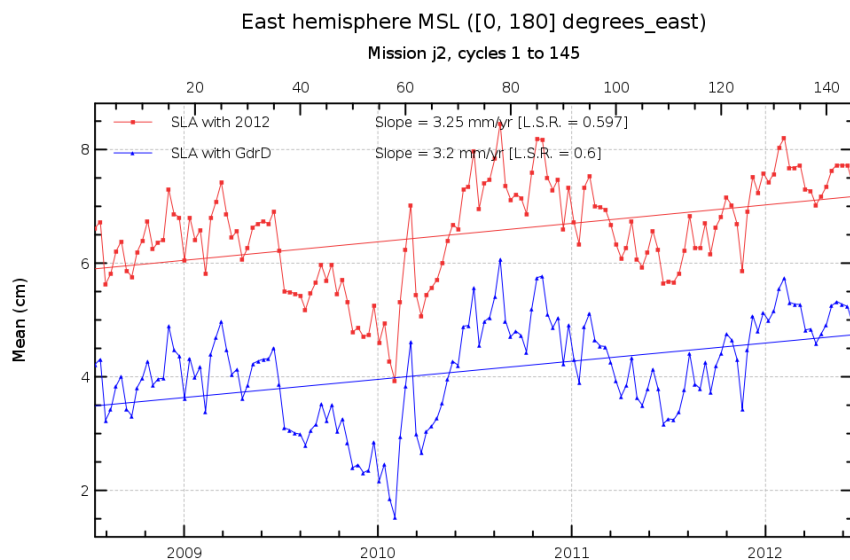
## Diagnostic A201\_d (mission j2)

**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



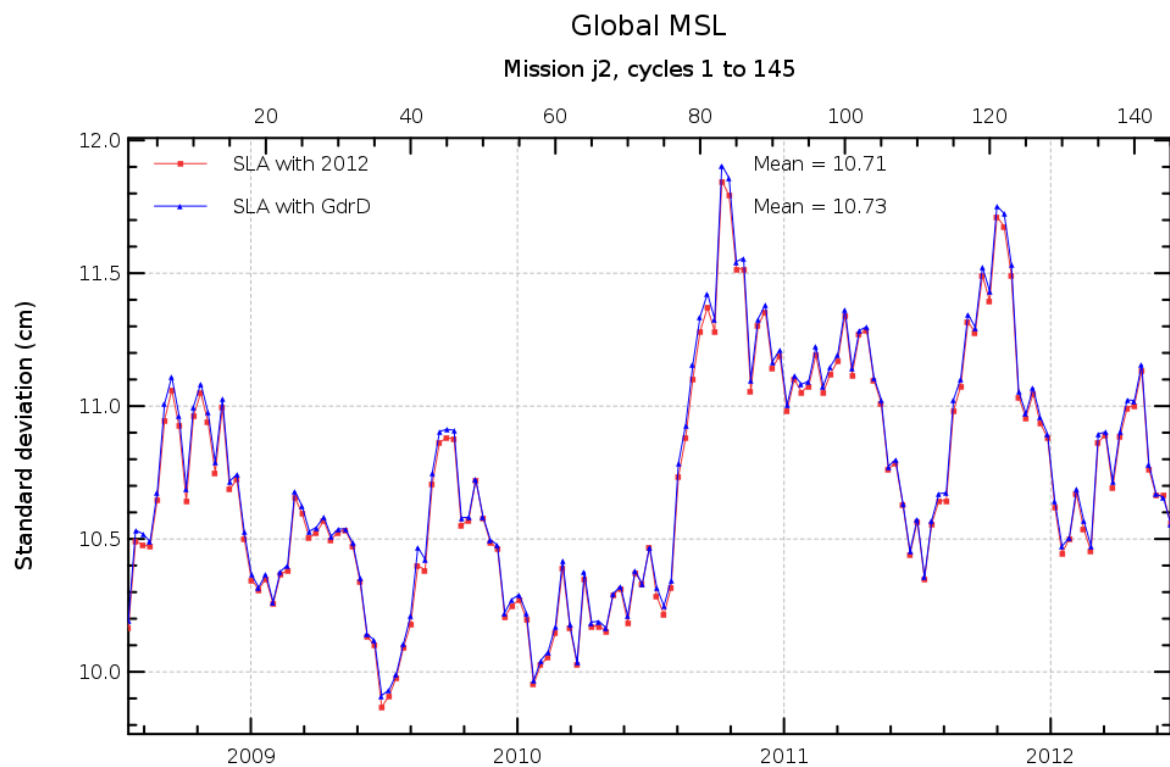
## Diagnostic A201\_e (mission j2)

**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



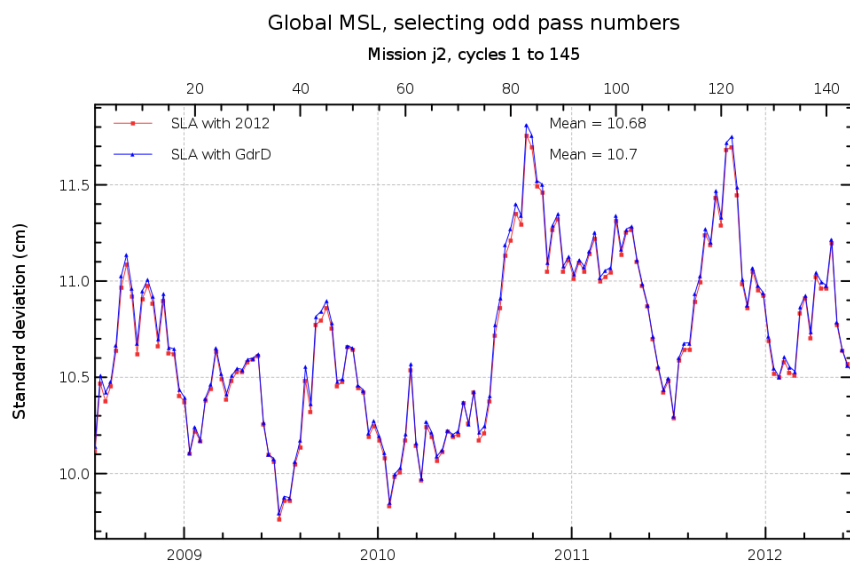
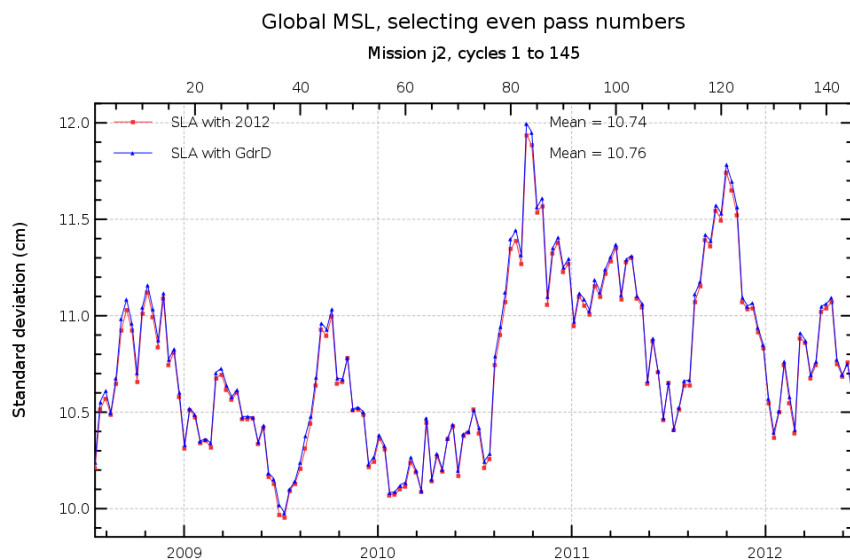
## Diagnostic A201\_f (mission j2)

**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



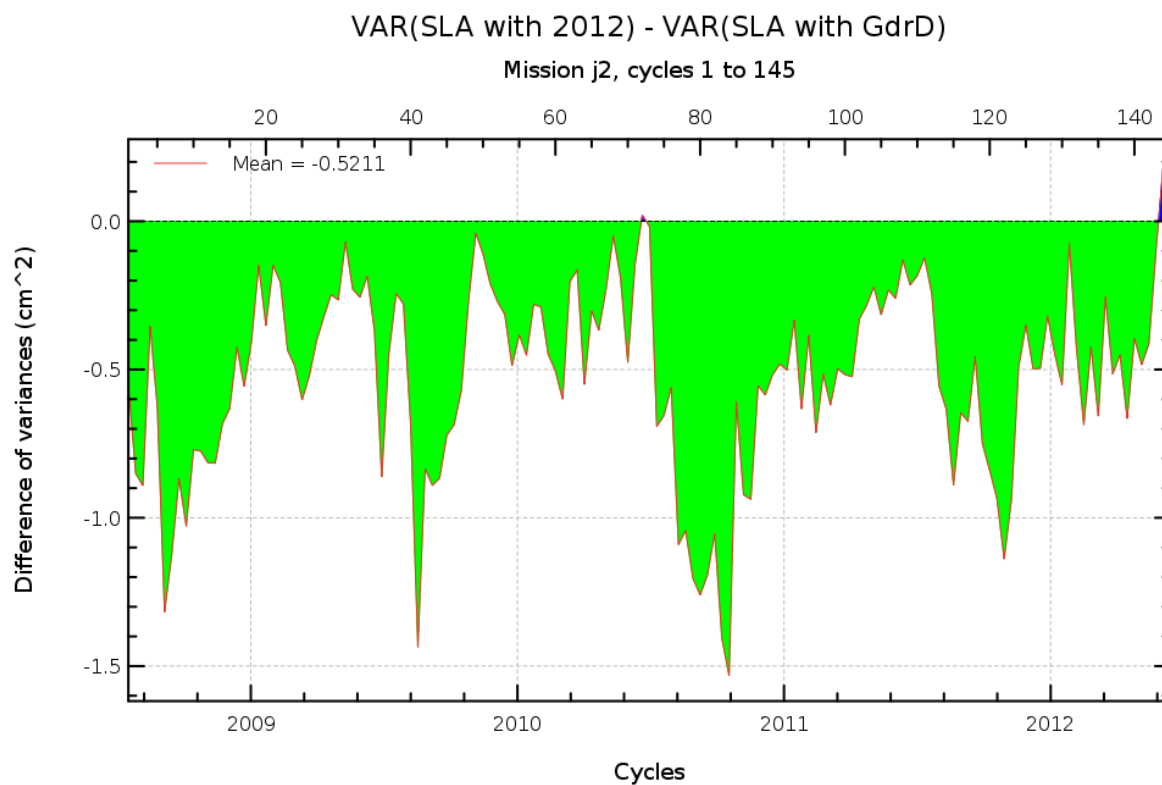
**Diagnostic A202\_a (mission j2)**

**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



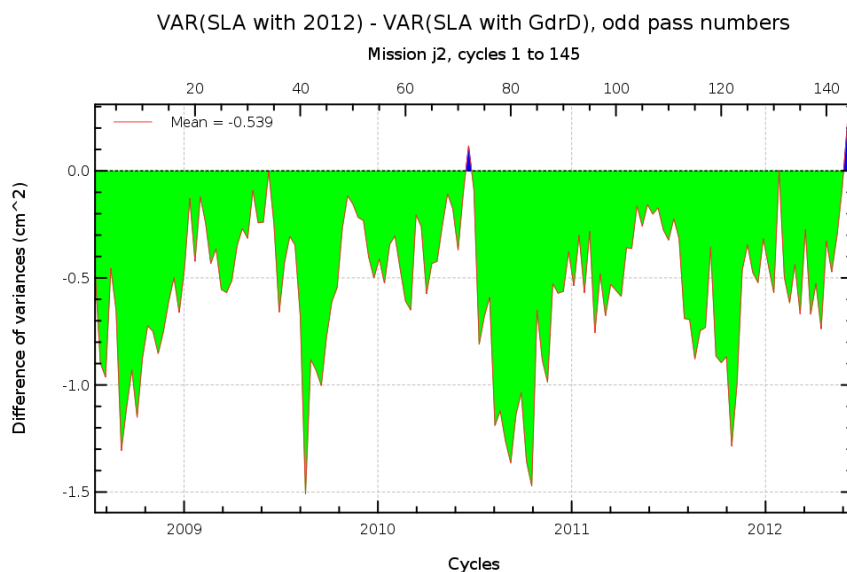
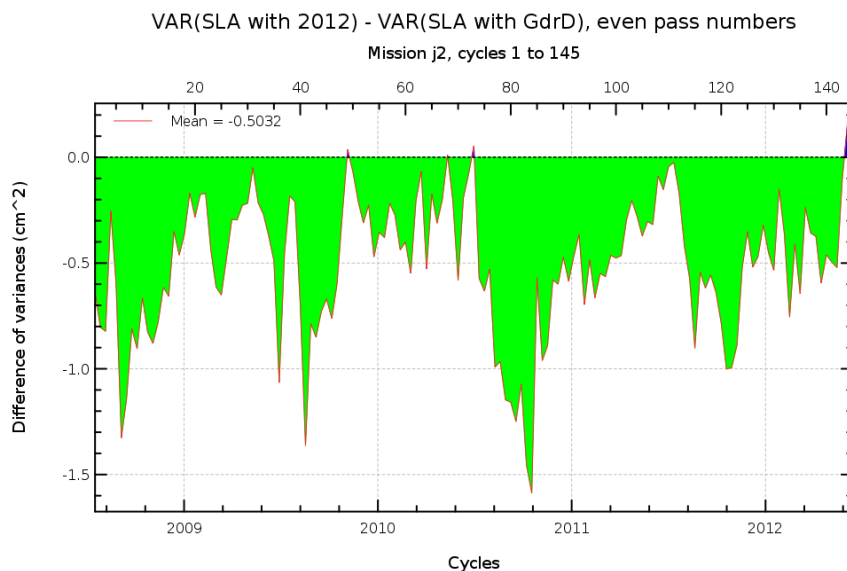
## Diagnostic A202\_b (mission j2)

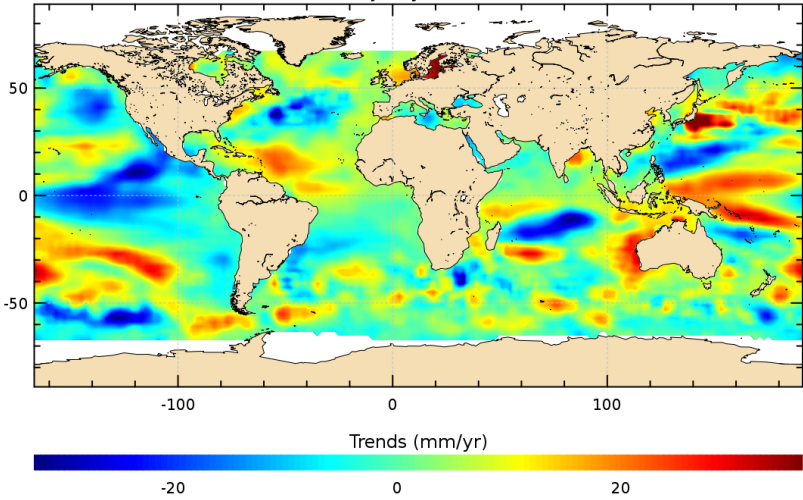
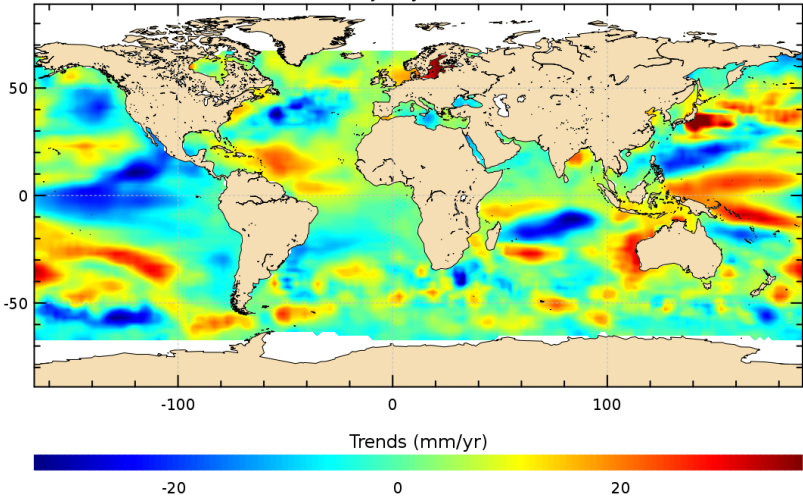
**Name :** Differences between temporal evolution of Sea Level Anomaly (SLA)

**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 j2)	
	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 2012 trends Mission j2, cycles 1 to 145</div>  <div>SLA with GdrD trends Mission j2, cycles 1 to 145</div> 	

## Diagnostic A203\_b (mission j2)

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

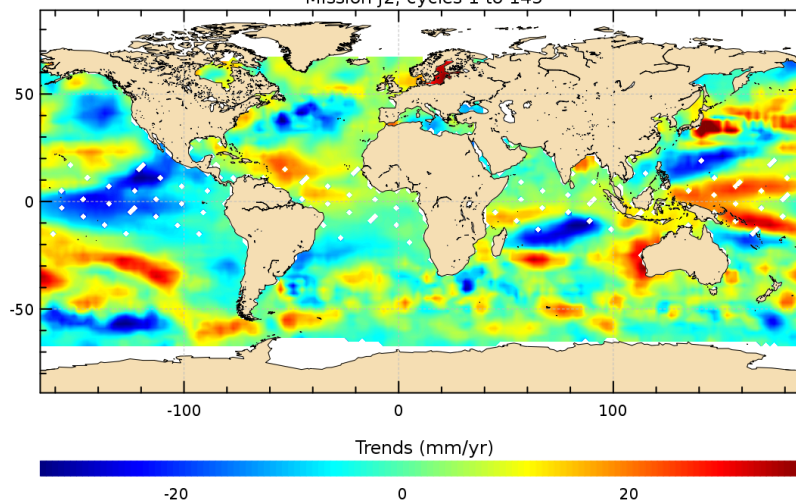
**Input data :** Along track SLA

**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

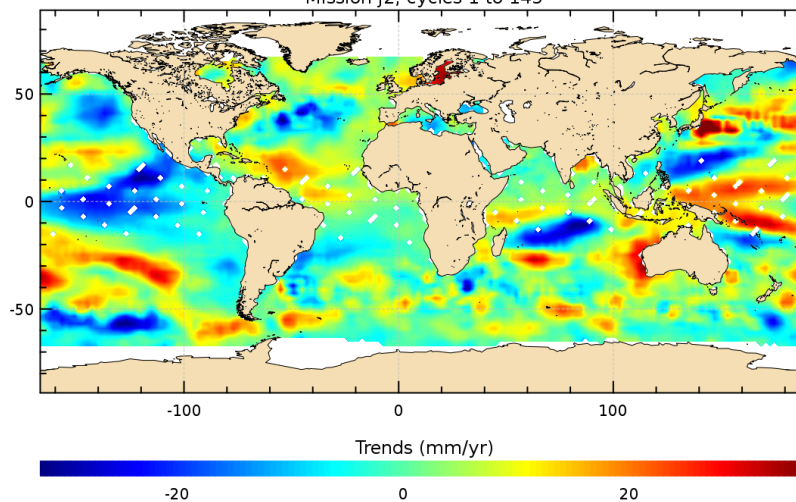
SLA with 2012 trends : even pass numbers

Mission j2, cycles 1 to 145



SLA with GdrD trends : even pass numbers

Mission j2, cycles 1 to 145



## Diagnostic A203\_c (mission j2)

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

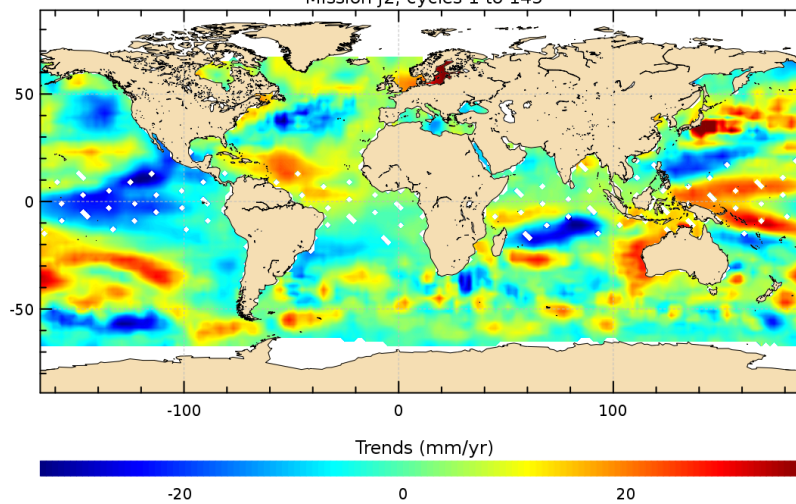
**Input data :** Along track SLA

**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

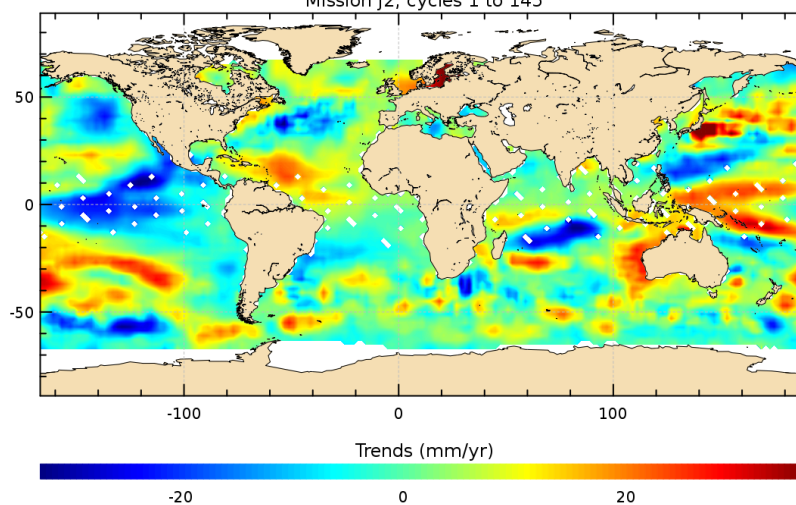
SLA with 2012 trends : odd pass numbers

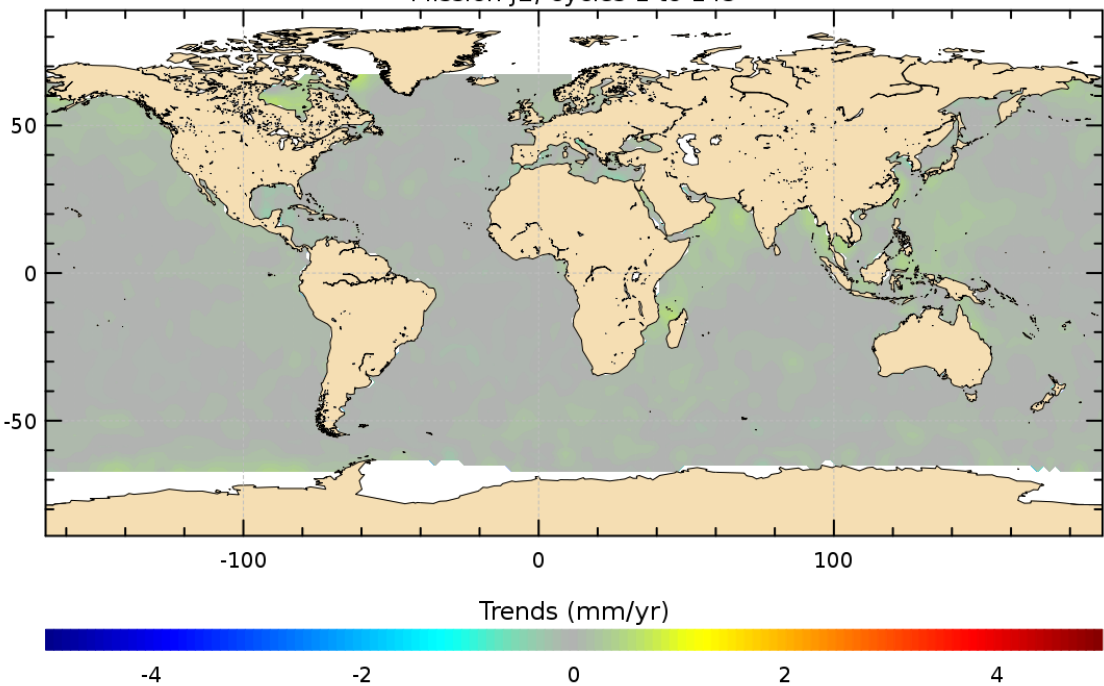
Mission j2, cycles 1 to 145



SLA with GdrD trends : odd pass numbers

Mission j2, cycles 1 to 145



Diagnostic type : Global internal analyses	Diagnostic A204_a (mission j2)	
	Name : Differences between maps of SLA trends	
	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 2012 trends - SLA with GdrD trends</div> <div>Mission j2, cycles 1 to 145</div> 	

## Diagnostic A204\_b (mission j2)

**Name :** Differences between maps of SLA trends

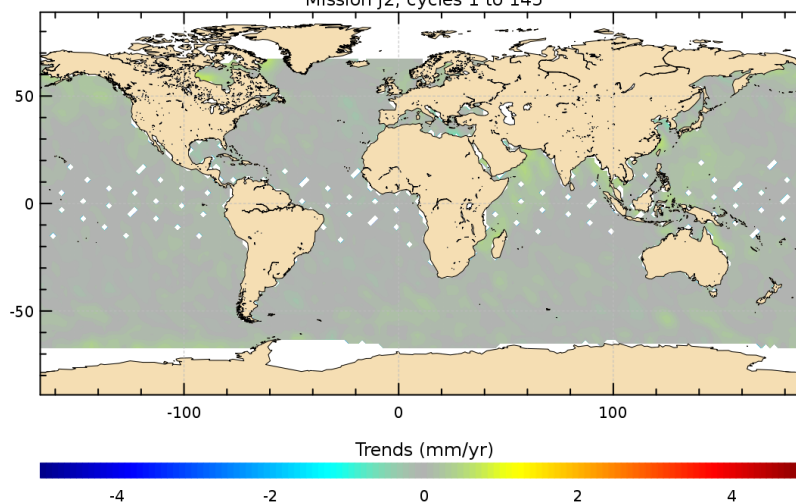
**Input data :** Along track SLA

**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

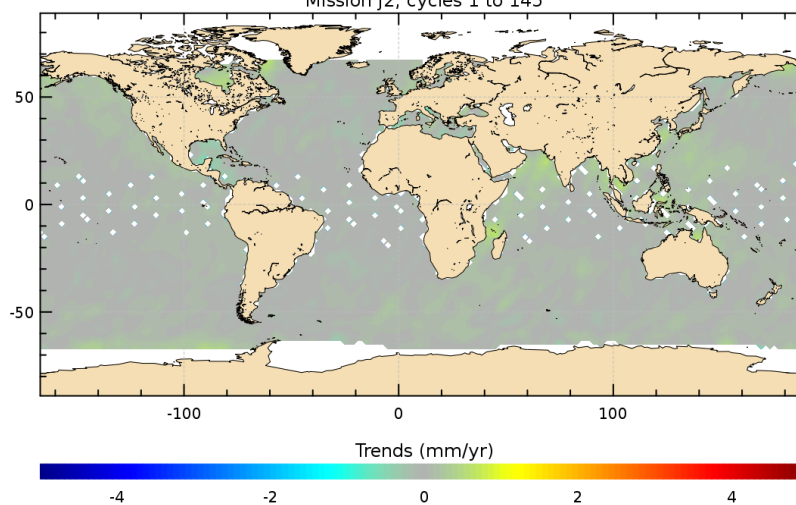
SLA with 2012 trends - SLA with GdrD trends : even pass numbers

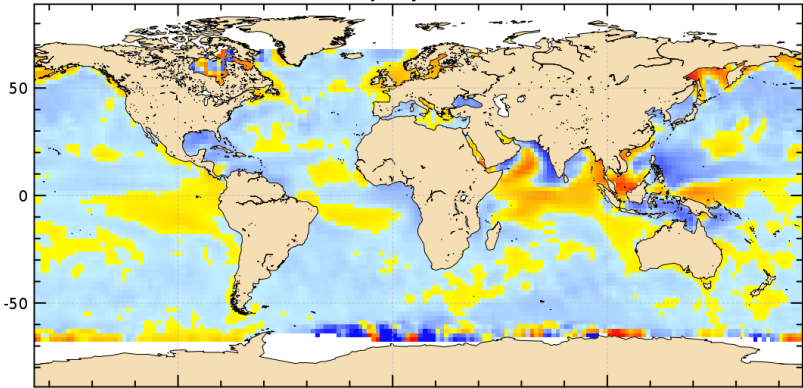
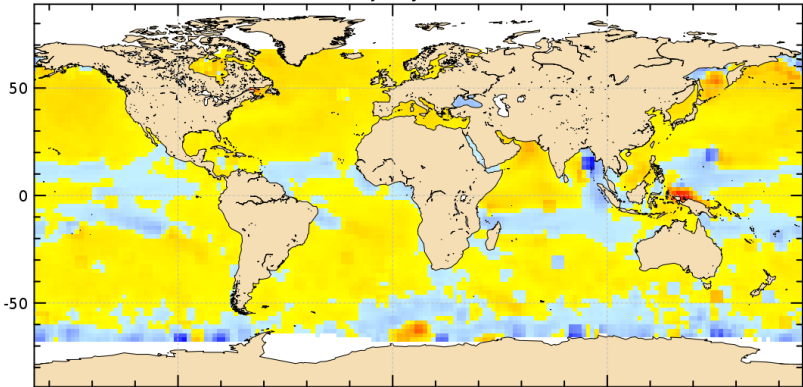
Mission j2, cycles 1 to 145



SLA with 2012 trends - SLA with GdrD trends : odd pass numbers

Mission j2, cycles 1 to 145



Diagnostic type : Global internal analyses	Diagnostic A205_a (mission j2)	
	Name : Differences between maps of SLA amplitude and phase	
	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 2012 amplitude - SLA with GdrD amplitude : annual signal</div> <div>Mission j2, cycles 1 to 145</div>  <div>Amplitude (cm)</div> <div>-0.4 -0.2 0.0 0.2 0.4</div> <div>SLA with 2012 phase - SLA with GdrD phase : annual signal</div> <div>Mission j2, cycles 1 to 145</div>  <div>Phase (degree)</div> <div>-20 -10 0 10 20</div>	

## Diagnostic A205\_b (mission j2)

**Name :** Differences between maps of SLA amplitude and phase

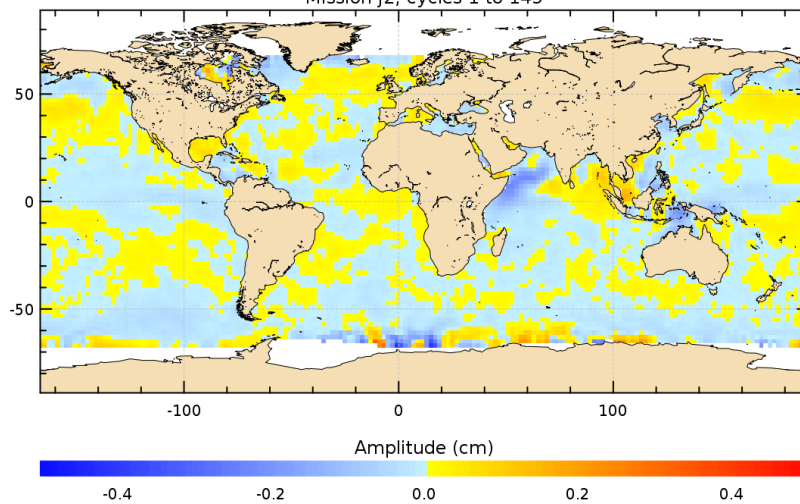
**Input data :** Along track SLA

**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

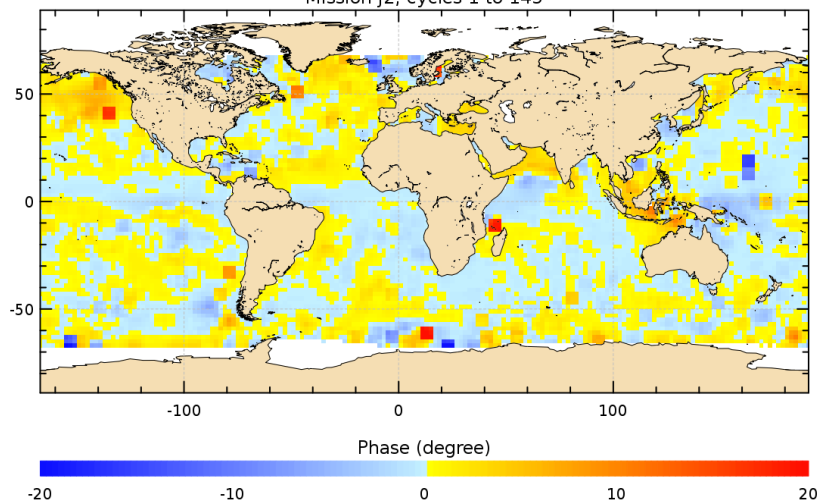
LA with 2012 amplitude - SLA with GdrD amplitude : semi-annual signal

Mission j2, cycles 1 to 145



SLA with 2012 phase - SLA with GdrD phase : semi-annual signal

Mission j2, cycles 1 to 145

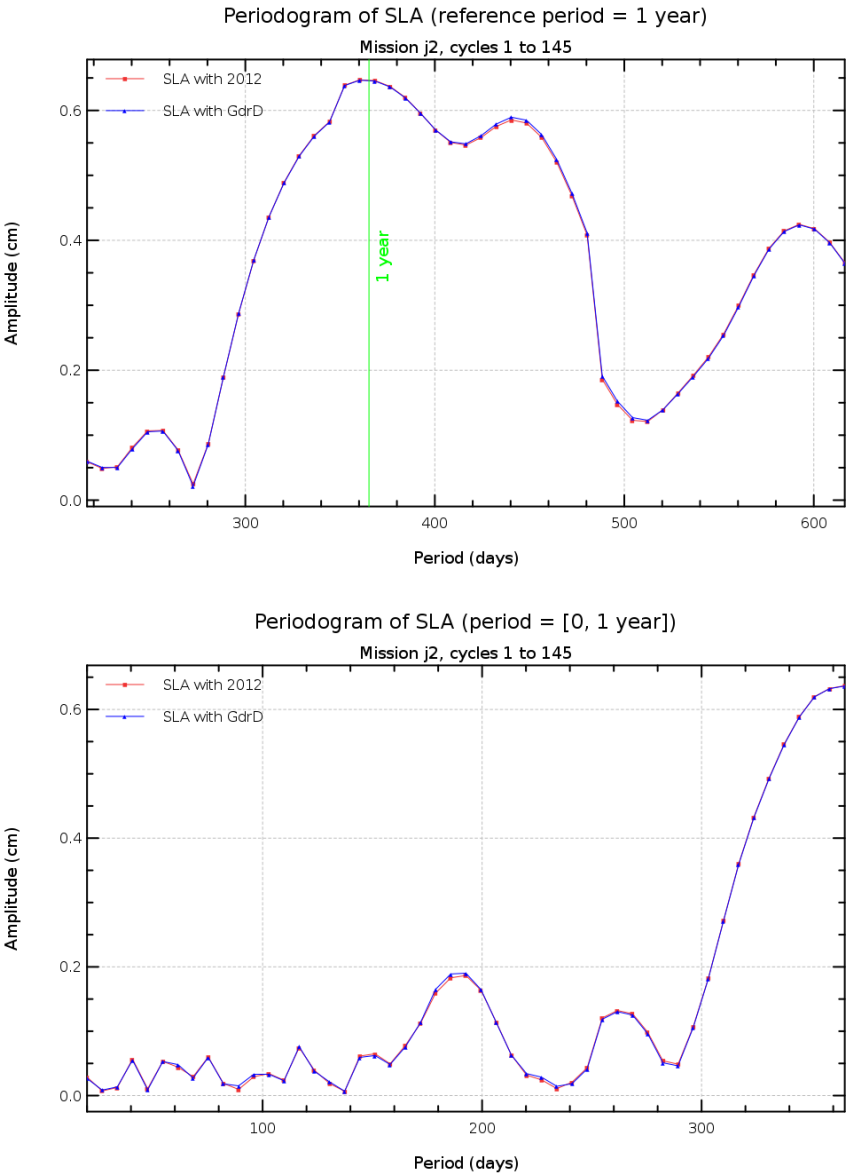


Diagnostic A206\_a (mission j2)

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 j2)

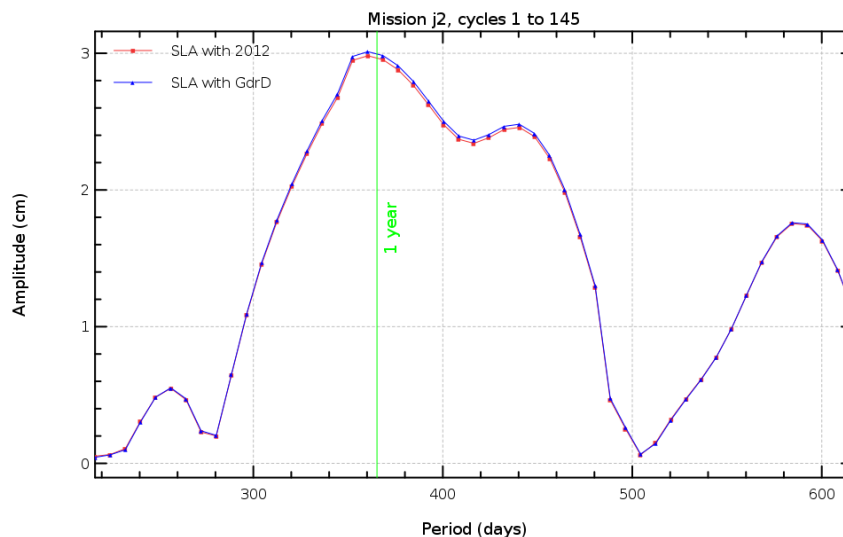
**Name :** Periodogram derived from temporal evolution of Sea Level Anomaly (SLA)

**Input data :** Along track SLA

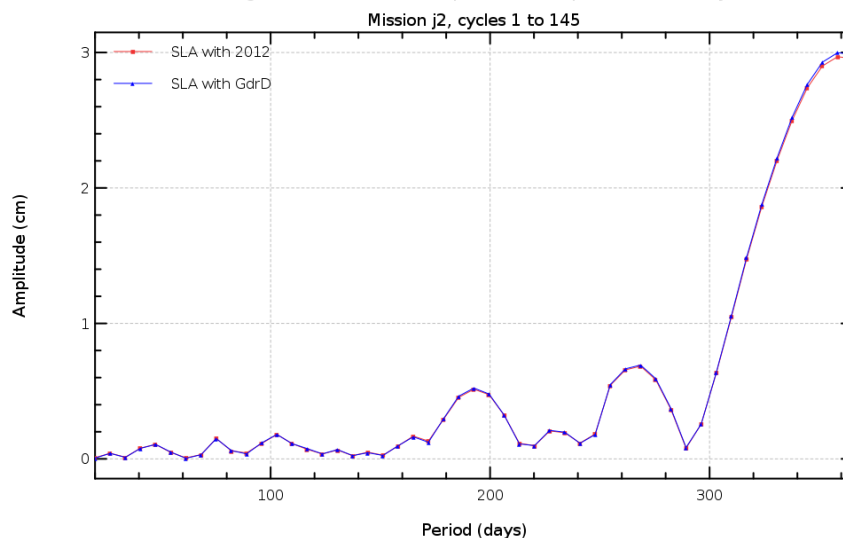
**Description :** The periodogram derived from temporal evolution of SLA (global, northern or southern hemisphere) can be done over all periods or focusing on particular periods, such as annual, semi annual or 60 day signal. Therefore mean of SLA differences are computed (every day or cycle), and time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

Diagnostic type : Global internal analyses

Periodogram of north hemisphere SLA (reference period = 1 year)



Periodogram of north hemisphere SLA (period = [0, 1 year])



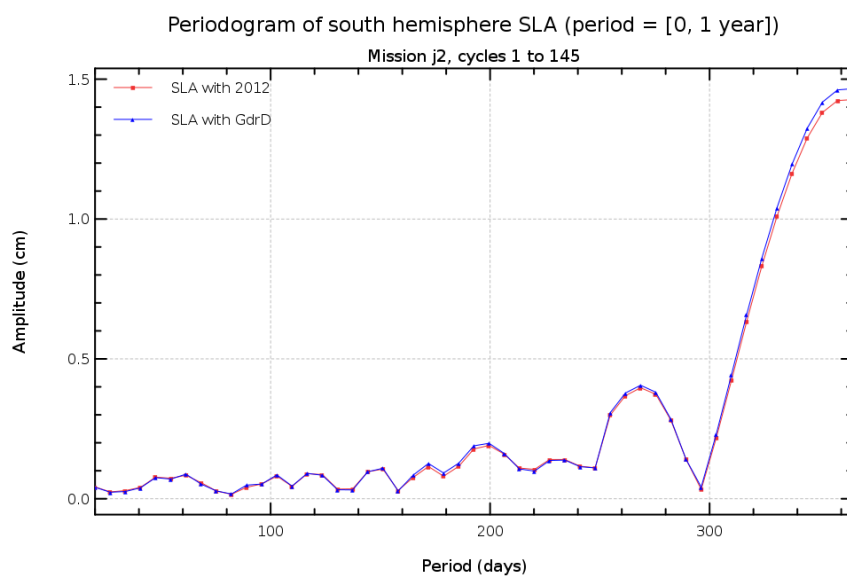
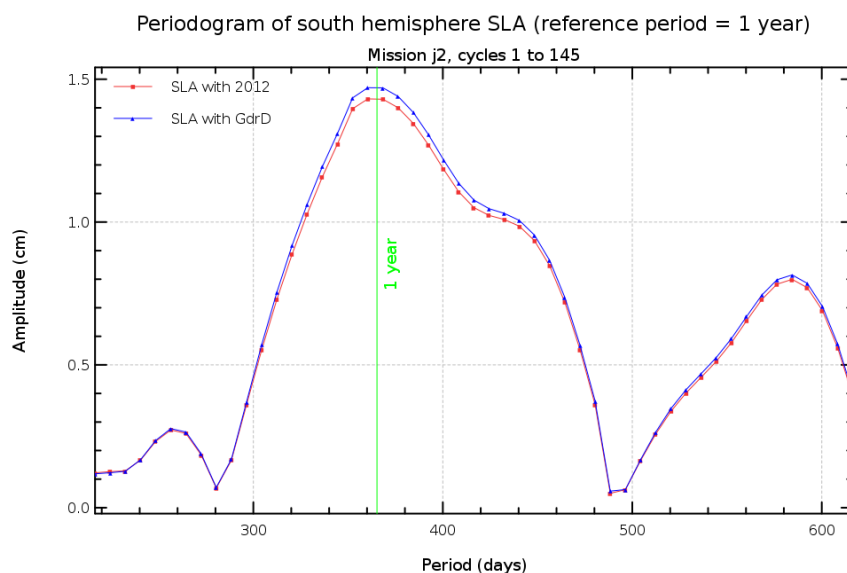
## Diagnostic A206\_c (mission j2)

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

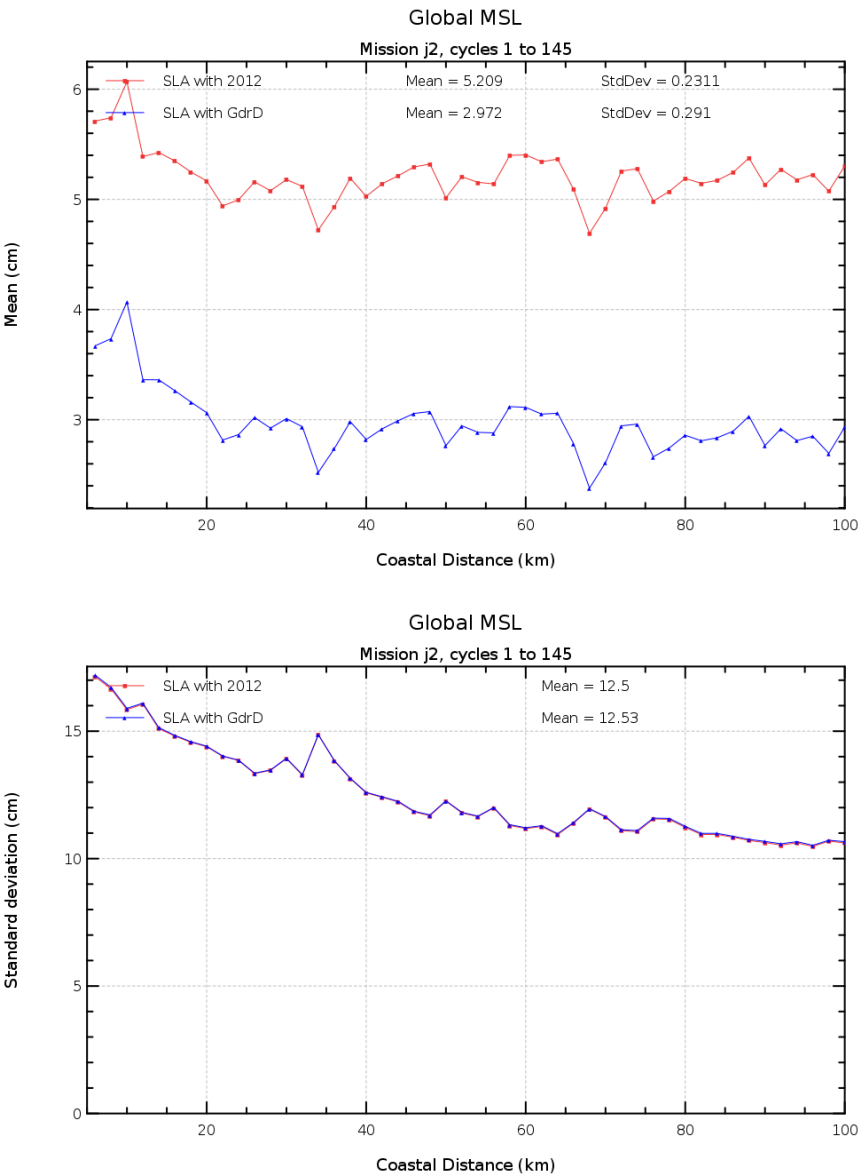
**Input data :** Along track SLA

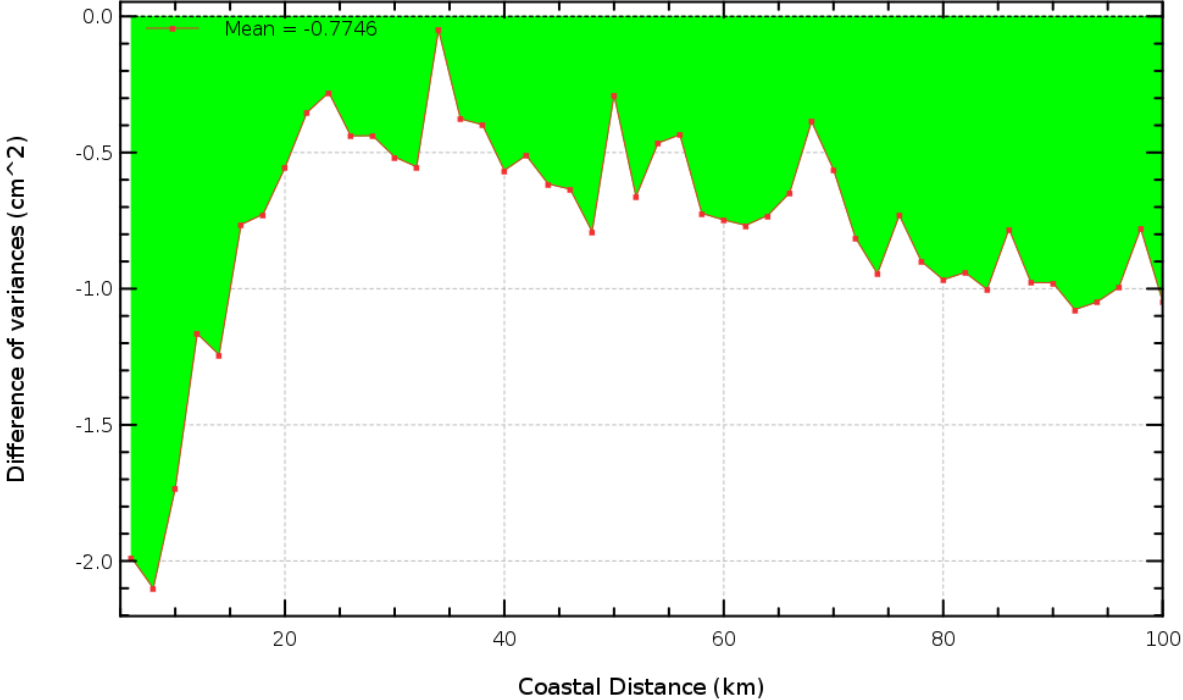
**Description :** The periodogram derived from temporal evolution of SLA (global, northern or southern hemisphere) can be done over all periods or focusing on particular periods, such as annual, semi annual or 60 day signal. Therefore mean of SLA differences are computed (every day or cycle), and time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

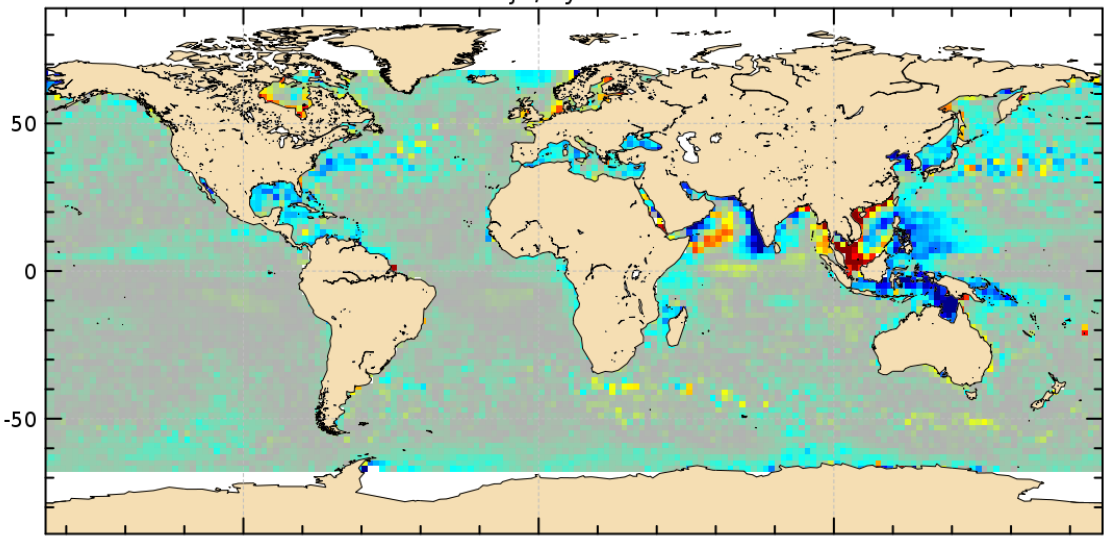
Diagnostic type : Global internal analyses

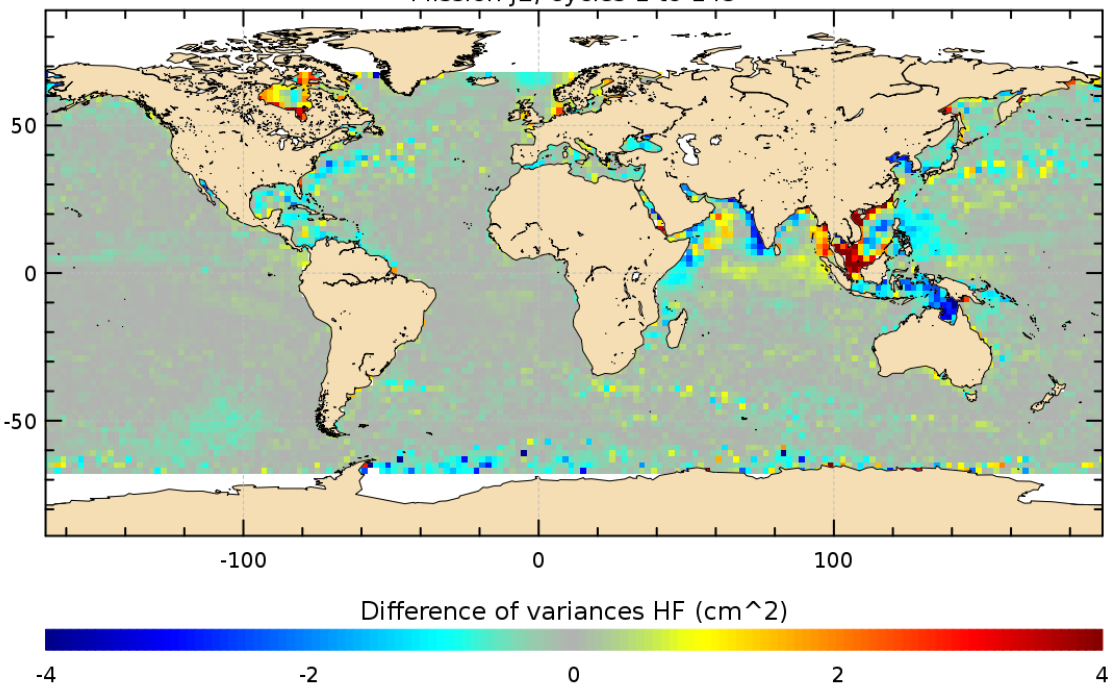


Diagnostic A207 (mission j2)	
Name : Sea Level Anomaly (SLA) versus coastal distance	
Input data : Along track SLA	
Description : Mean and standard deviation of SLA - computed by using successively both altimetric components - are plotted in function of coastal distances between 0 and 100 km.	



Diagnostic type : Global internal analyses	Diagnostic A208 (mission j2)
	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><p>VAR(SLA with 2012) - VAR(SLA with GdrD)</p><p>Mission j2, cycles 1 to 145</p></div>

Diagnostic type : Global internal analyses	Diagnostic A209 (mission j2)	
	Name : Differences between maps of SLA variance	
	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 2012) - VAR(SLA with GdrD)</div> <div>Mission j2, cycles 1 to 145</div>  <div>Difference of variances (cm<sup>2</sup>)</div> <div><div></div><div>-4</div><div>-2</div><div>0</div><div>2</div><div>4</div></div>	

Diagnostic type : Global internal analyses	<b>Diagnostic A210_a (mission j2)</b>
	<b>Name :</b> Differences between maps of SLA variance for different frequency bands
	<b>Input data :</b> Along track SLA
	<b>Description :</b> The differences between maps of SLA (variance) are calculated from the mean SLA maps using successively both altimetric components in the SLA calculation filtered to separate high-frequency ( $T < 1$ yr), mid-frequency ( $1 \text{ yr} < T < 3$ yrs) and low-frequency ( $T > 3$ yrs) signals.
	<div><p>VAR(SLA with 2012) - VAR(SLA with GdrD) for FILTER HF</p><p>Mission j2, cycles 1 to 145</p></div>

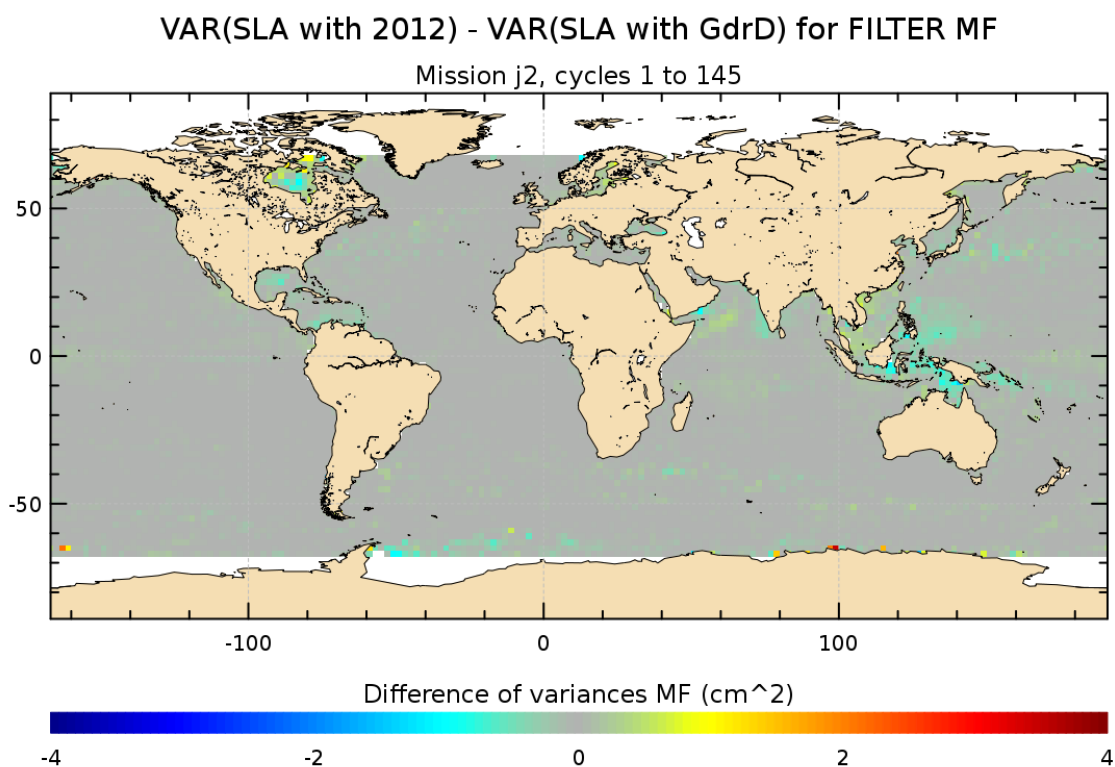
## Diagnostic A210\_b (mission j2)

**Name :** Differences between maps of SLA variance for different frequency bands

**Input data :** Along track SLA

**Description :** The differences between maps of SLA (variance) are calculated from the mean SLA maps using successively both altimetric components in the SLA calculation filtered to separate high-frequency ( $T < 1$  yr), mid-frequency ( $1 \text{ yr} < T < 3$  yrs) and low-frequency ( $T > 3$  yrs) signals.

Diagnostic type : Global internal analyses



## Diagnostic A210\_c (mission j2)

**Name :** Differences between maps of SLA variance for different frequency bands

**Input data :** Along track SLA

**Description :** The differences between maps of SLA (variance) are calculated from the mean SLA maps using successively both altimetric components in the SLA calculation filtered to separate high-frequency ( $T < 1$  yr), mid-frequency ( $1 \text{ yr} < T < 3$  yrs) and low-frequency ( $T > 3$  yrs) signals.

Diagnostic type : Global internal analyses

