

Wet Troposphere atmospheric corrections comparison : ERA versus ECMWF

Study variable	ERA
Reference variable	ECMWF
Missions	Jason-2 (<i>j2</i>)
Period	[23376, 23750]

Creation date : 2015/10/06

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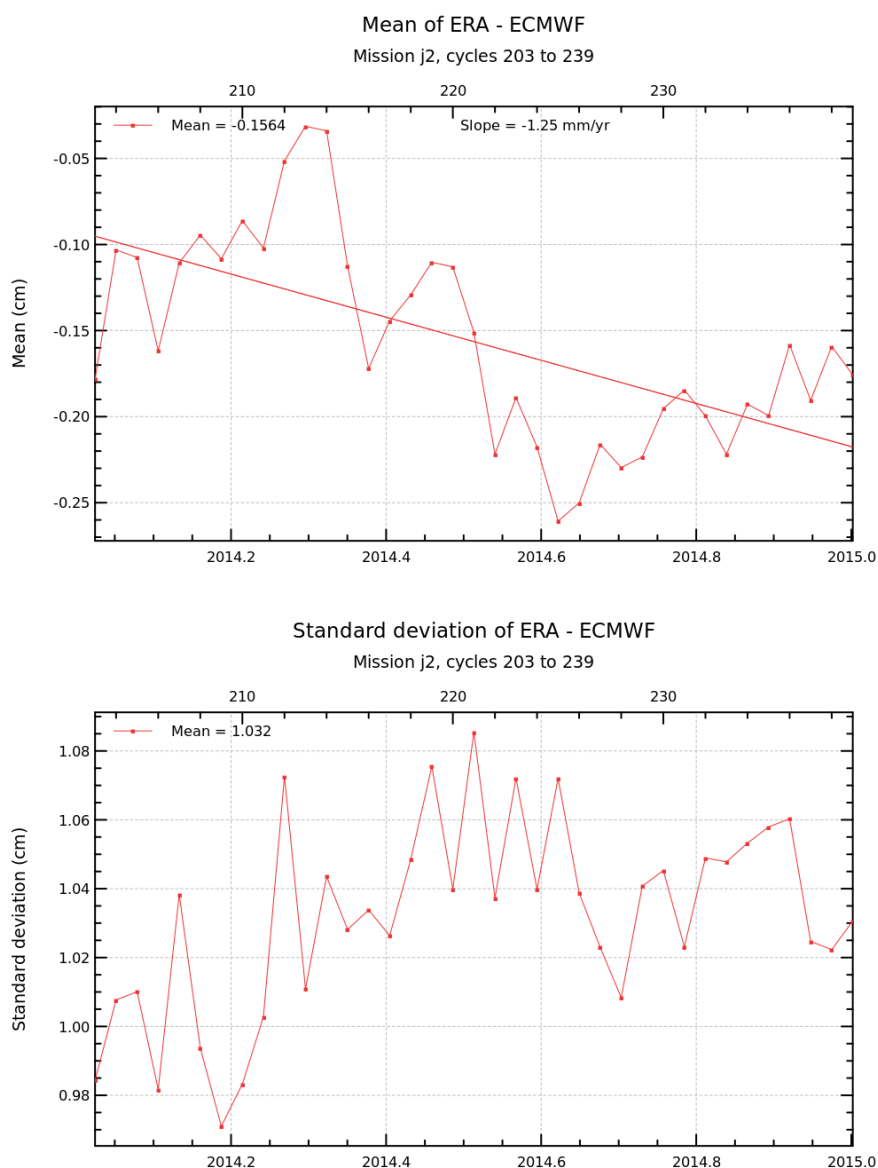
Diagnostic A001 (mission j2)

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 type : Mono-mission analyses

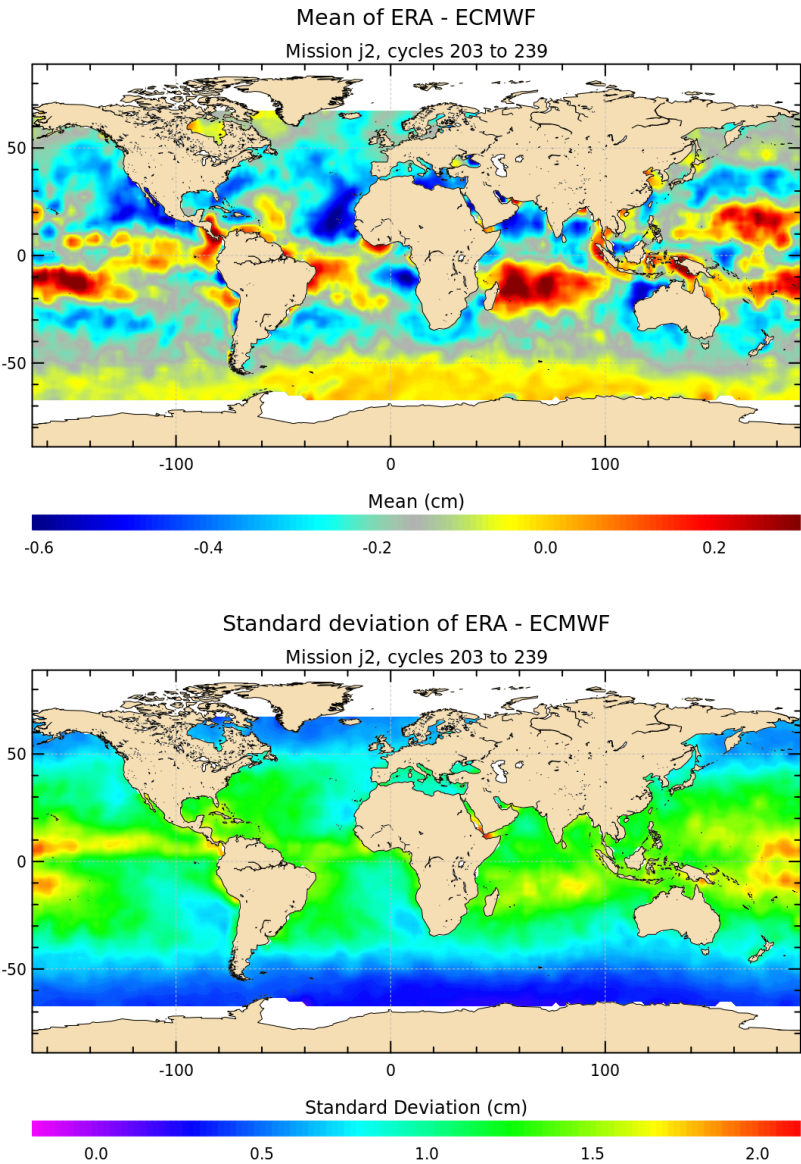


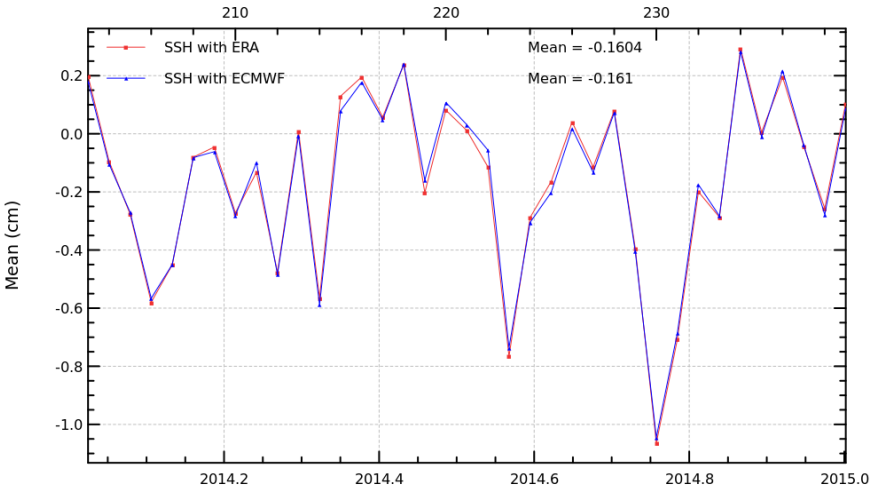
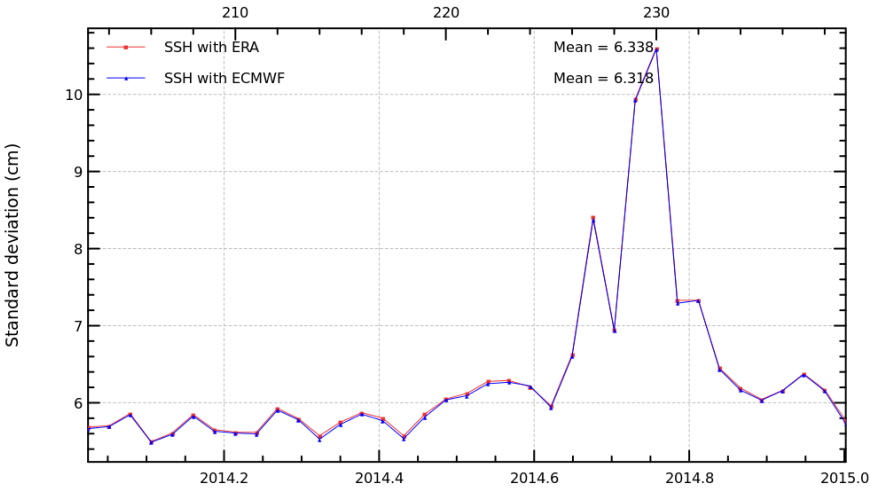
Diagnostic A002 (mission j2)

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 A101_a (mission j2)	
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 j2, cycles 203 to 239</div></div><div><div>Standard deviations of SSH crossovers</div><div>Mission j2, cycles 203 to 239</div></div></div>	

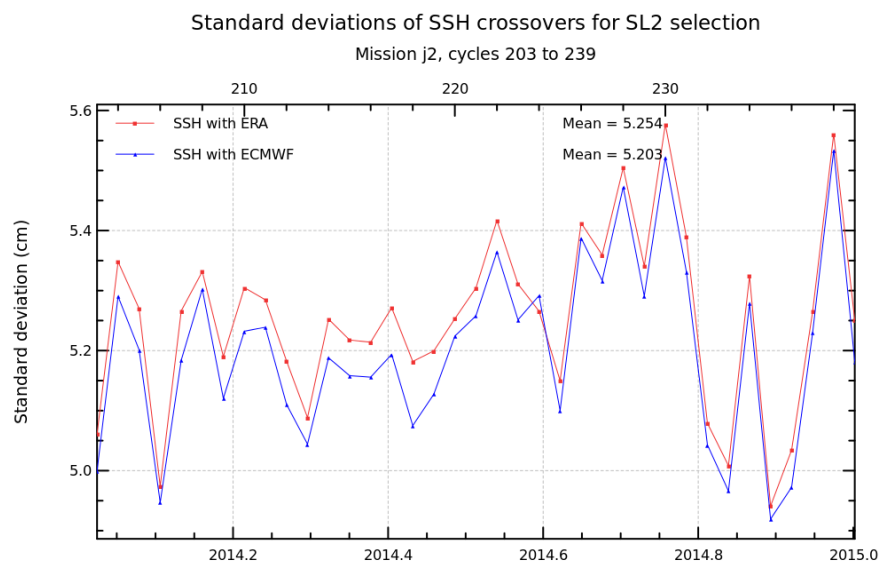
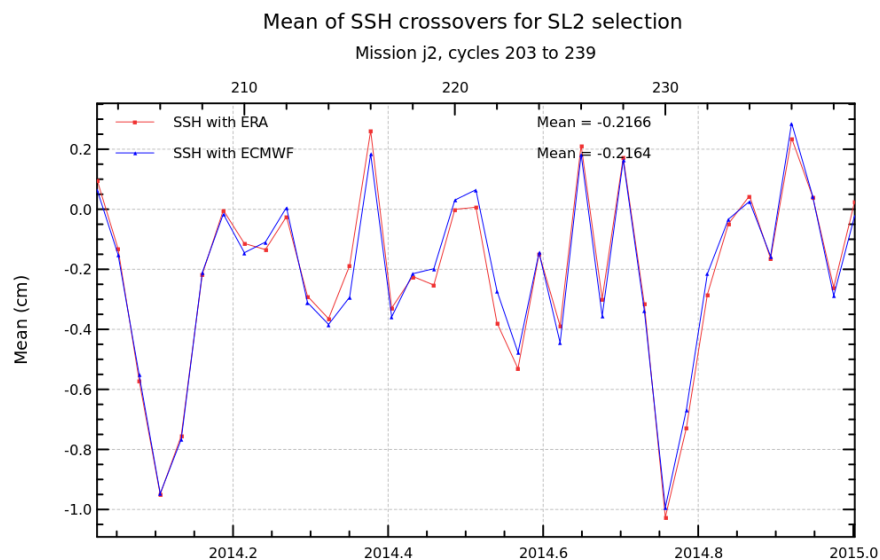
Diagnostic A101_b (mission j2)

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 : Mono-mission analyses



Diagnostic A102 (mission j2)

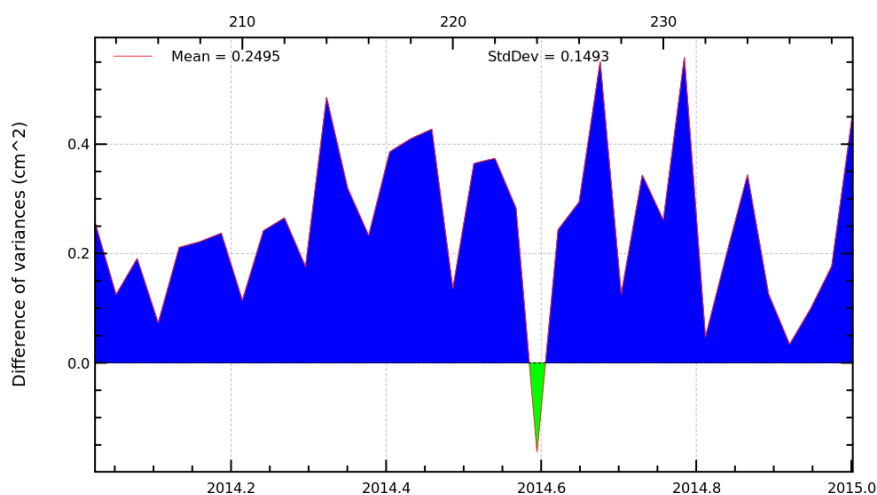
Name : Differences between temporal evolution of SSH crossovers

Input data : Sea Surface Height (SSH) crossovers

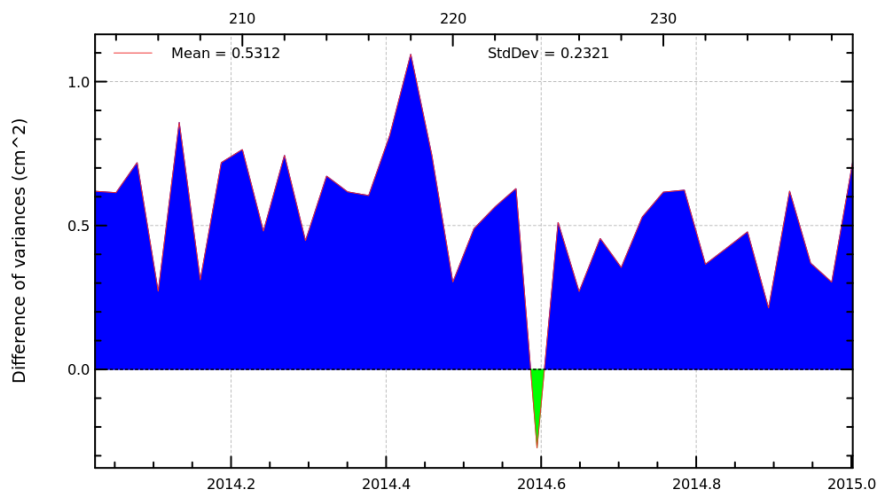
Description : The difference of temporal evolution between the global statistics (mean, standard deviation) of SSH differences are calculated using successively both altimetric components in the SSH calculation. SSH crossovers are the differences between ascending and descending passes for time differences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

Diagnostic type : Mono-mission analyses

SSH crossovers : VAR(SSH with ERA) - VAR(SSH with ECMWF)
Mission j2, cycles 203 to 239



SSH crossovers : VAR(SSH with ERA) - VAR(SSH with ECMWF) (SL2)
Mission j2, cycles 203 to 239



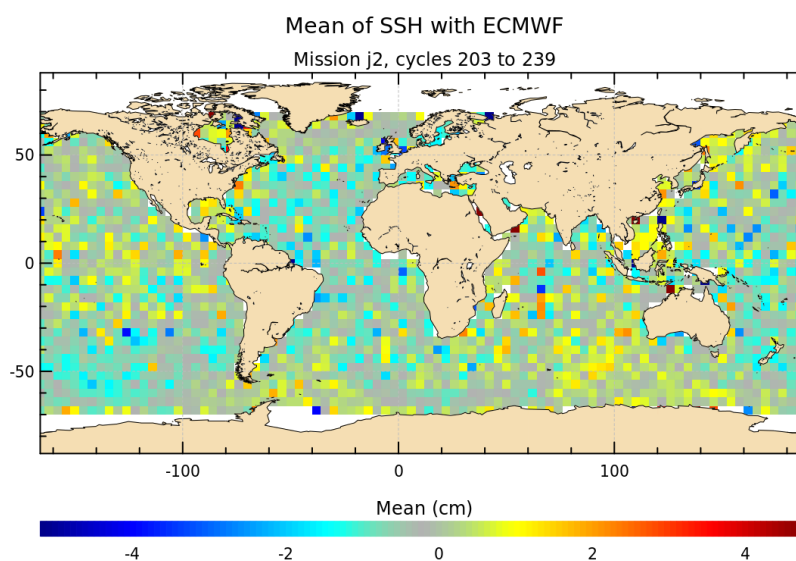
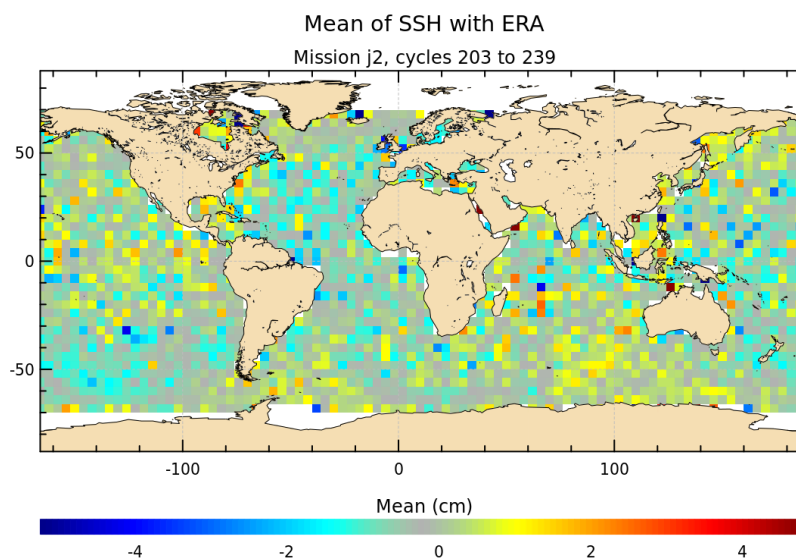
Diagnostic A103 (mission j2)

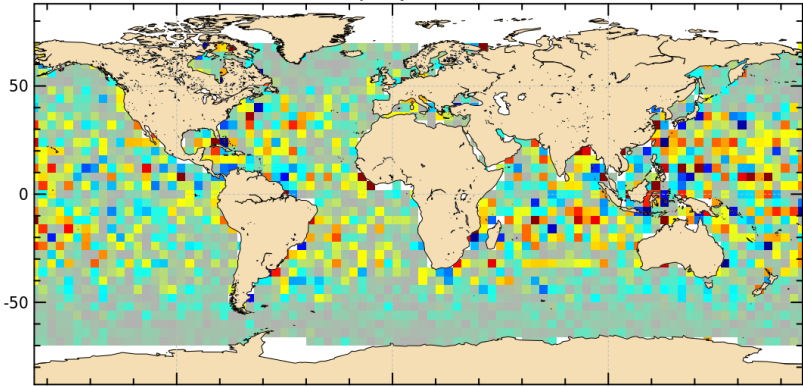
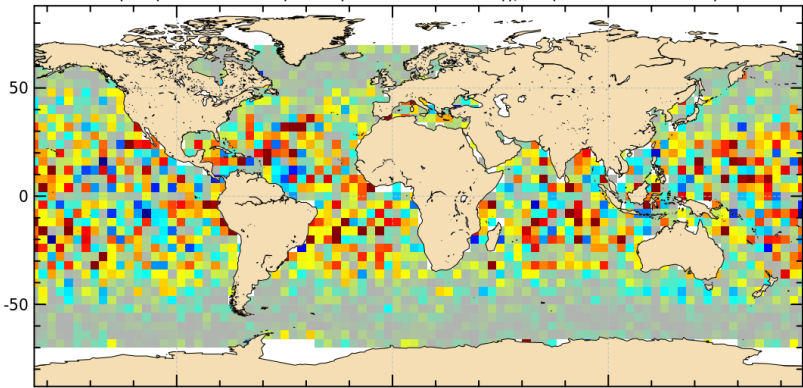
Name : Map of SSH crossovers

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 : Mono-mission analyses



Diagnostic type : Mono-mission analyses	Diagnostic A104 (mission j2)	
	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).	
	<div><div>VAR(SSH with ERA) - VAR(SSH with ECMWF)</div><div>Mission j2, cycles 203 to 239</div><div>SSH crossovers : difference of variances (cm^2)</div><div>-505</div></div> <div><div>Percentage of X_SSH error reduction</div><div>(Var(SSH with ERA) - Var(SSH with ECMWF))/Var(SSH with ECMWF)</div><div>Reduction/Increase of variance of X_SSH - ln %</div><div>-20020</div></div>	

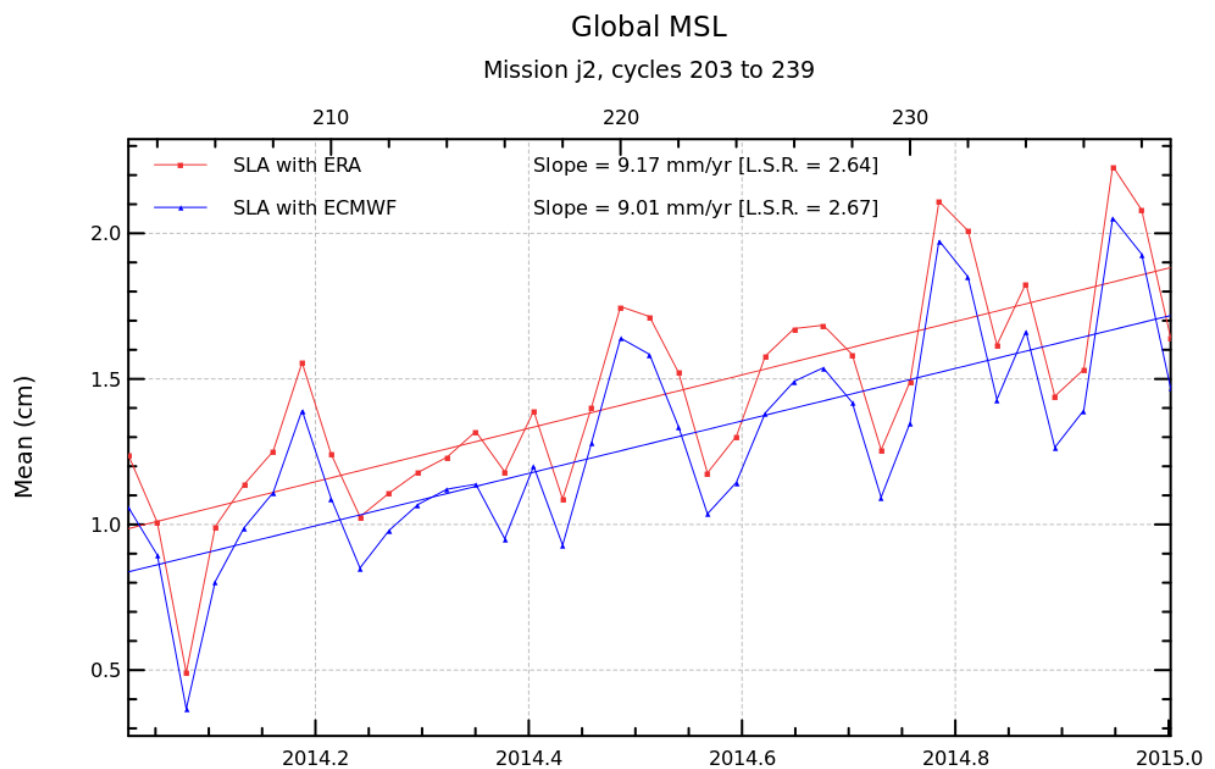
Diagnostic A201_a (mission j2)

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, or separating North and South hemispheres.

Diagnostic type : Mono-mission analyses



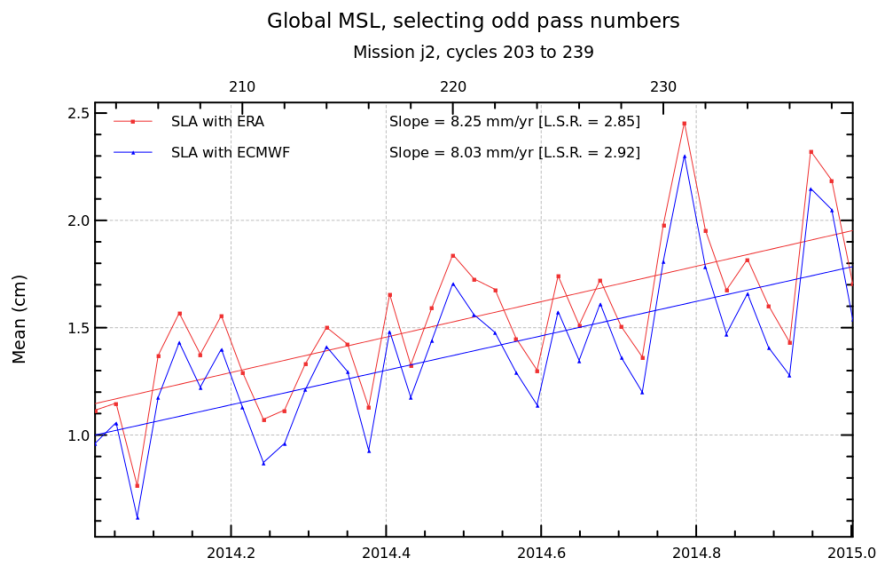
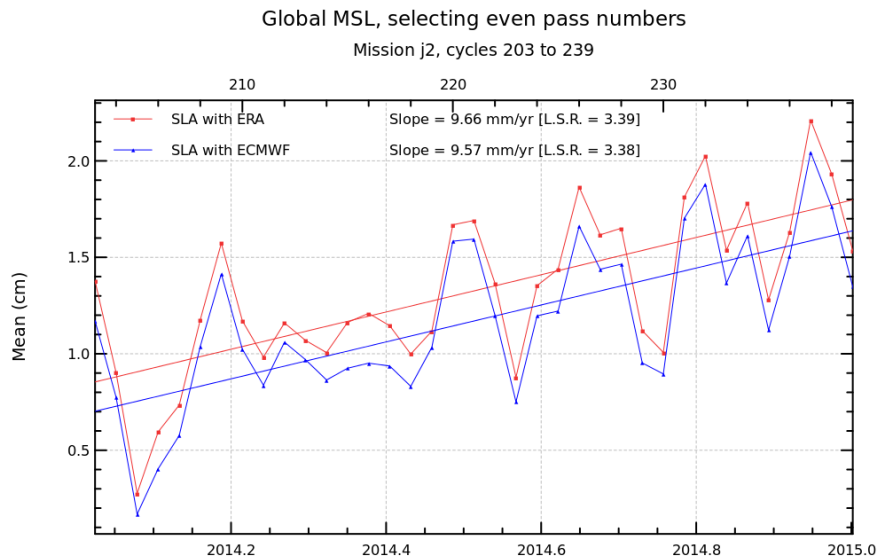
Diagnostic A201_b (mission j2)

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, or separating North and South hemispheres.

Diagnostic type : Mono-mission analyses



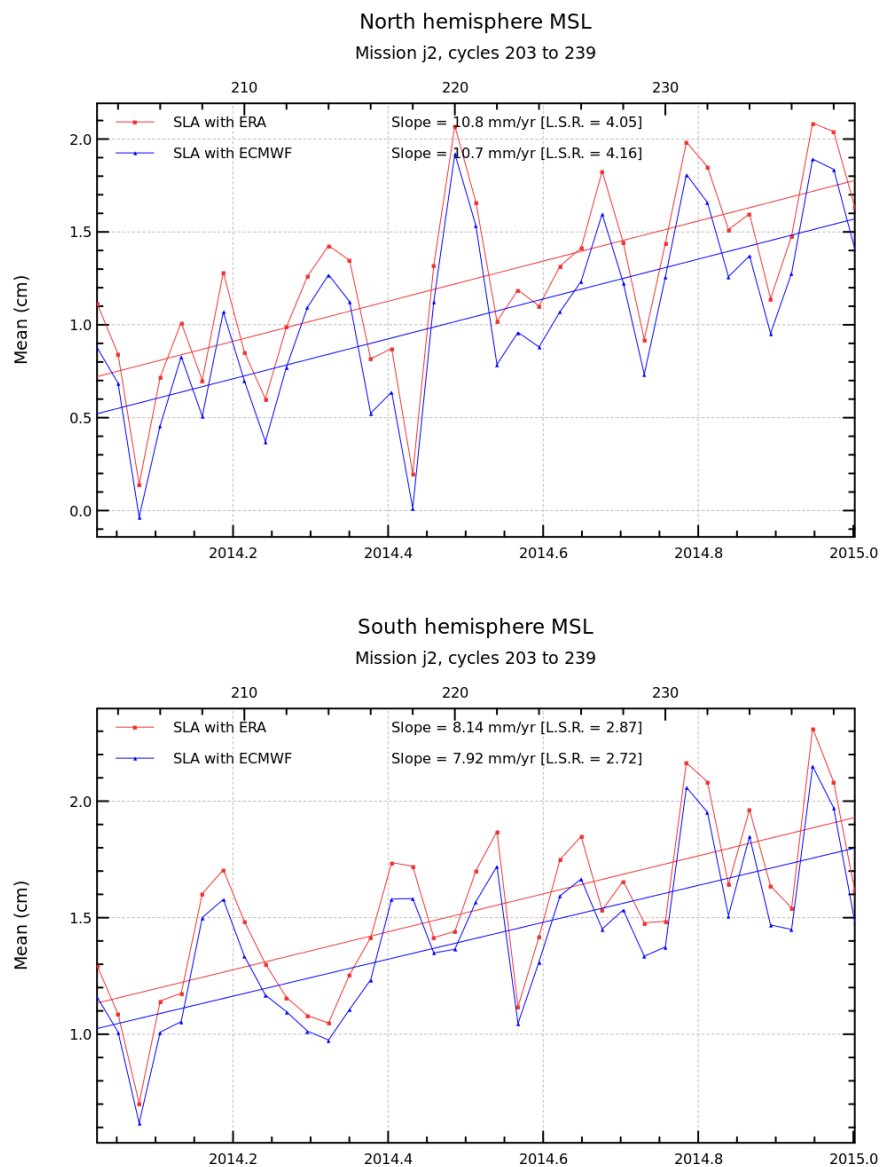
Diagnostic A201_c (mission j2)

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, or separating North and South hemispheres.

Diagnostic type : Mono-mission analyses



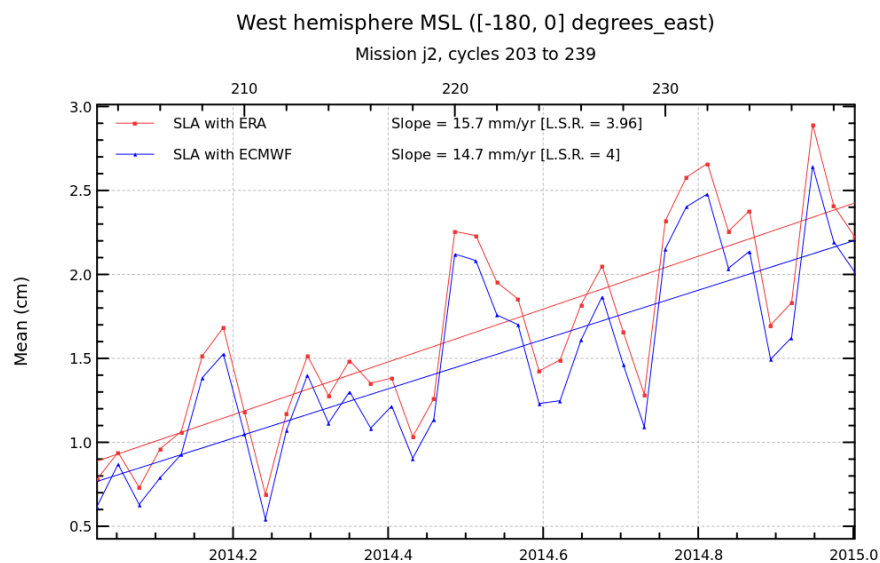
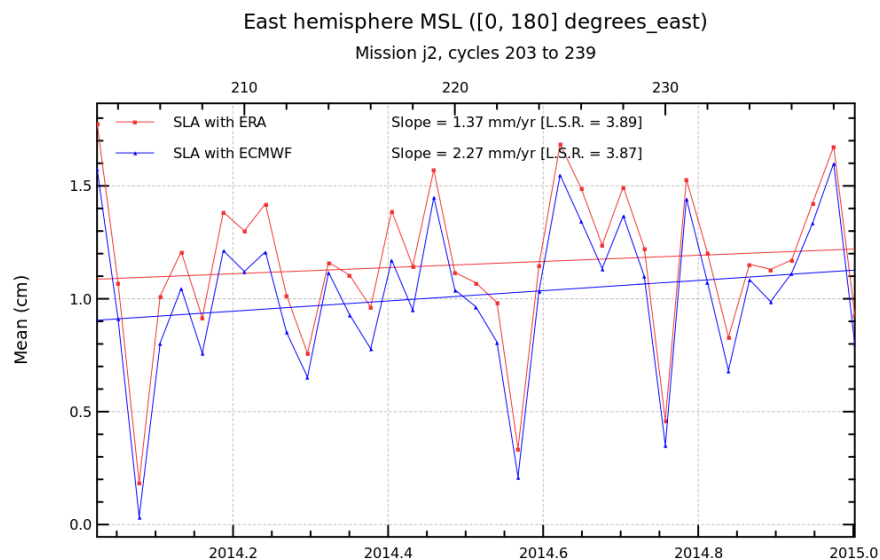
Diagnostic A201_d (mission j2)

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, or separating North and South hemispheres.

Diagnostic type : Mono-mission analyses



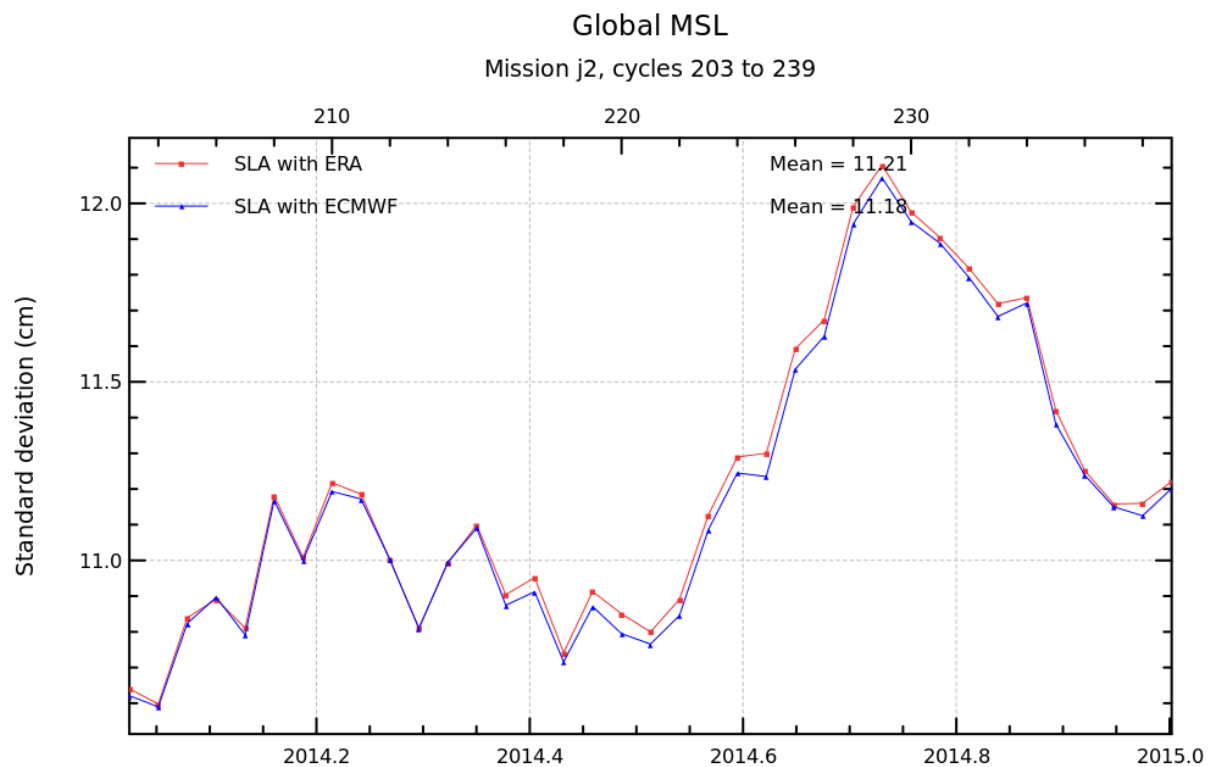
Diagnostic A201_e (mission j2)

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 repetitivity, daily, weekly, monthly) using successively both altimetric components in the SLA calculation. These statistics are calculated from 1 Hz altimetric measurements after removing spurious sea level measurements. They are calculated globally, but also separating ascending and descending passes, or separating North and South hemispheres.

Diagnostic type : Mono-mission analyses



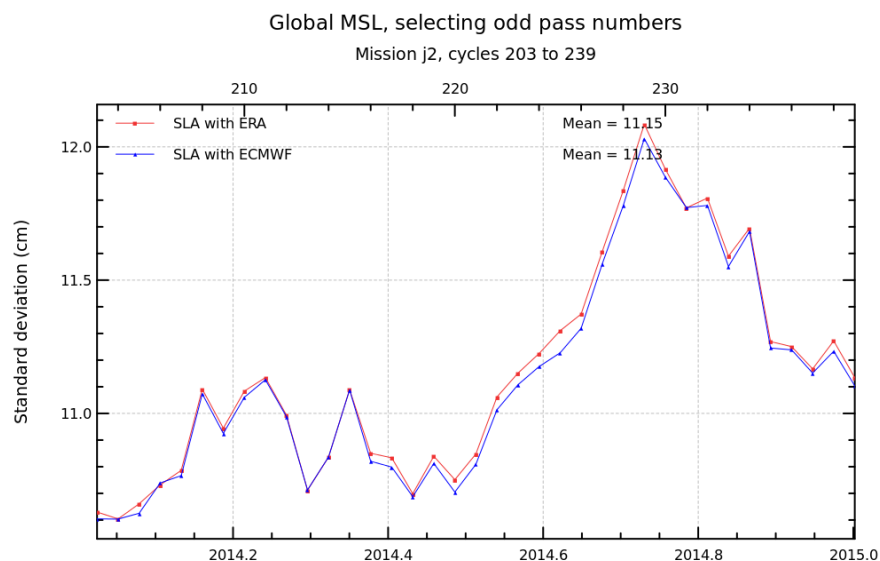
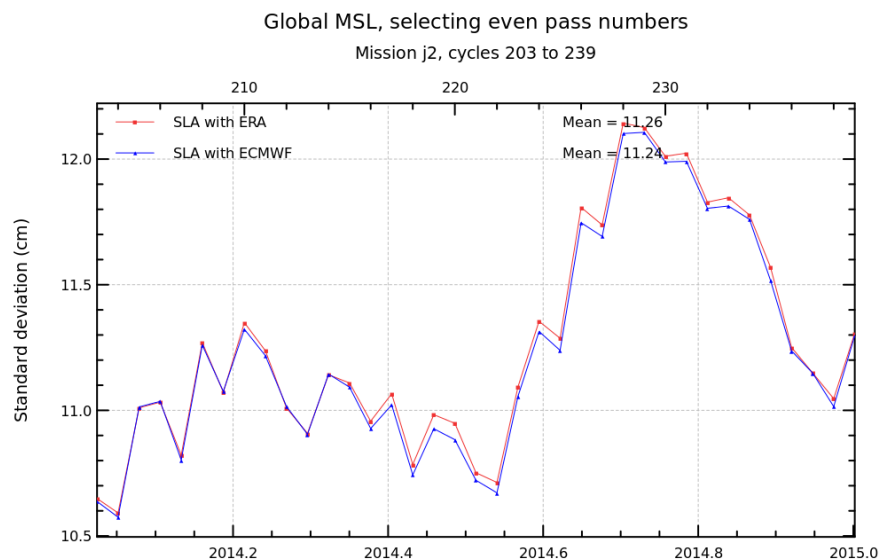
Diagnostic A201_f (mission j2)

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, or separating North and South hemispheres.

Diagnostic type : Mono-mission analyses



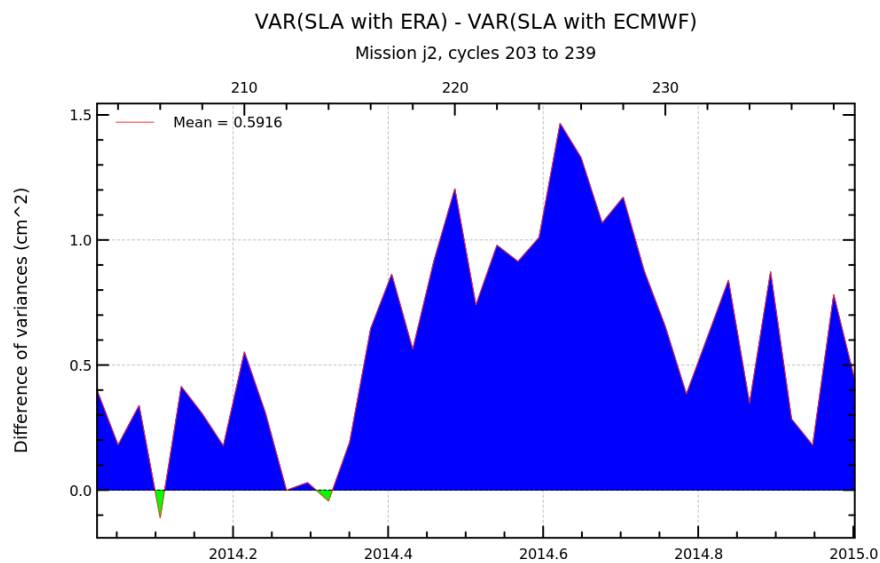
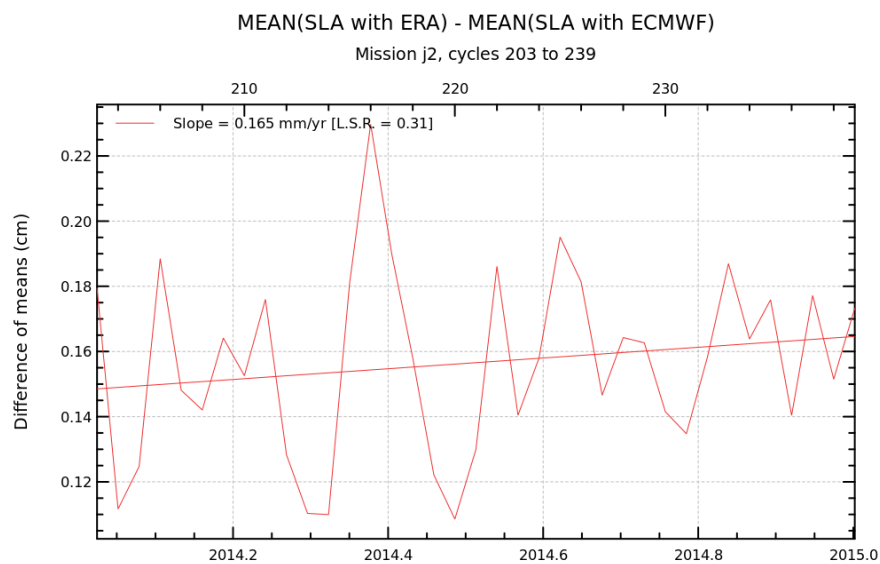
Diagnostic A202_a (mission j2)

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 or separating North and South hemispheres.

Diagnostic type : Mono-mission analyses



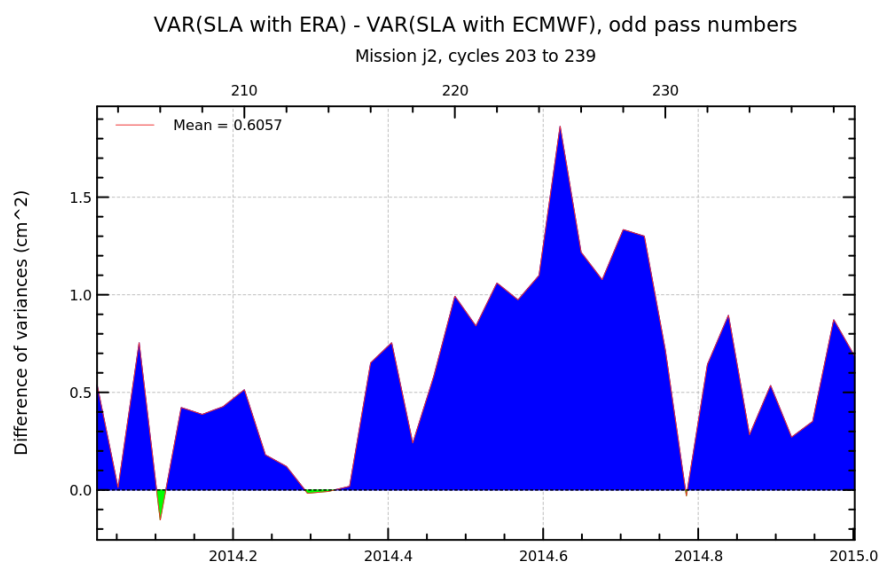
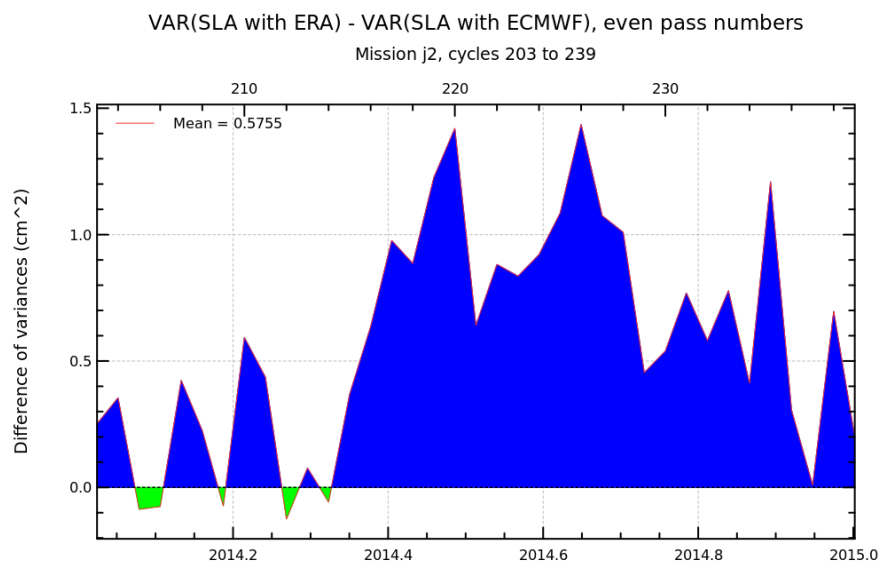
Diagnostic A202_b (mission j2)

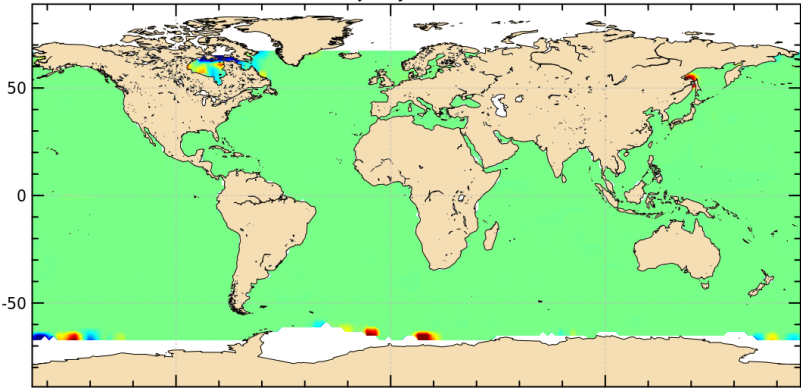
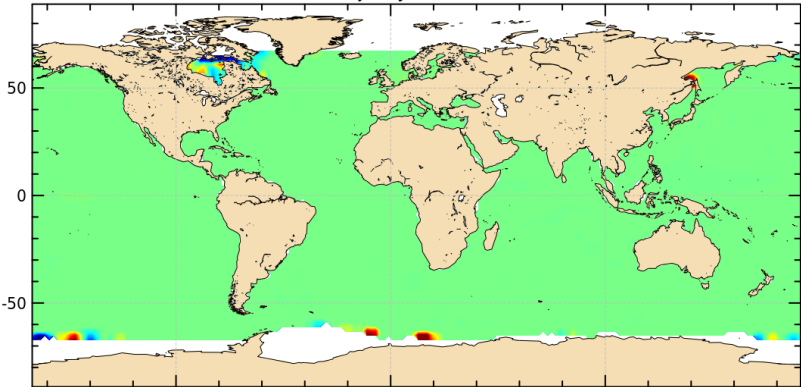
Name : Differences between temporal evolution of Sea Level Anomaly (SLA)

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 or separating North and South hemispheres.

Diagnostic type : Mono-mission analyses



Diagnostic type : Mono-mission 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 ERA trends Mission j2, cycles 203 to 239</div>  <div>Trends (mm/yr)</div> <div>-1.0 -0.5 0.0 0.5 1.0 (x10⁴)</div> <div>SLA with ECMWF trends Mission j2, cycles 203 to 239</div>  <div>Trends (mm/yr)</div> <div>-1.0 -0.5 0.0 0.5 1.0 (x10⁴)</div>	

Diagnostic A203_b (mission j2)

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

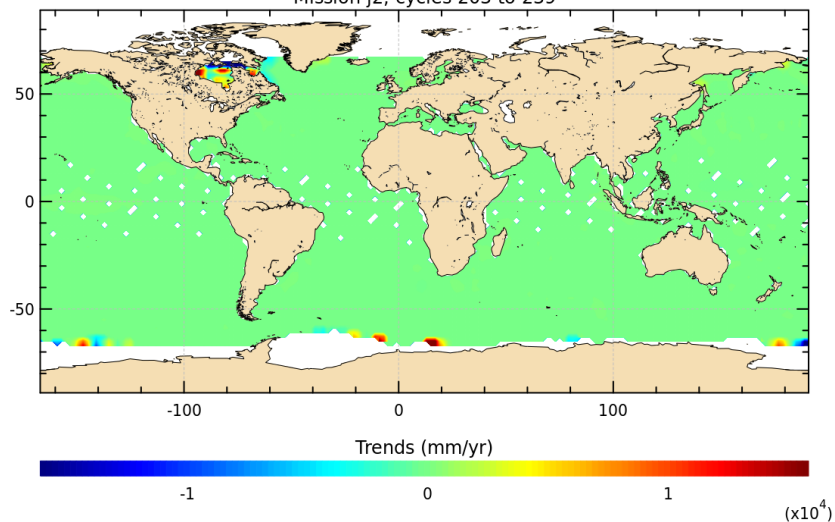
Input data : Along track SLA

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 : Mono-mission analyses

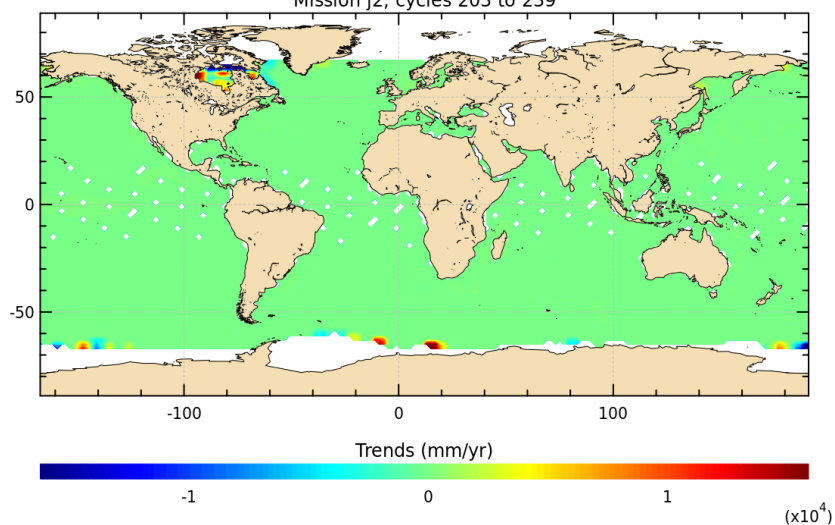
SLA with ERA trends : even pass numbers

Mission j2, cycles 203 to 239



SLA with ECMWF trends : even pass numbers

Mission j2, cycles 203 to 239



Diagnostic A203_c (mission j2)

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

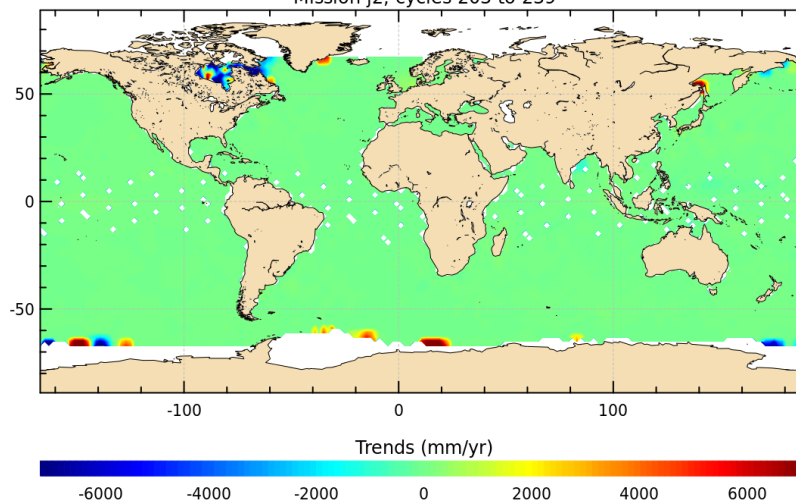
Input data : Along track SLA

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 : Mono-mission analyses

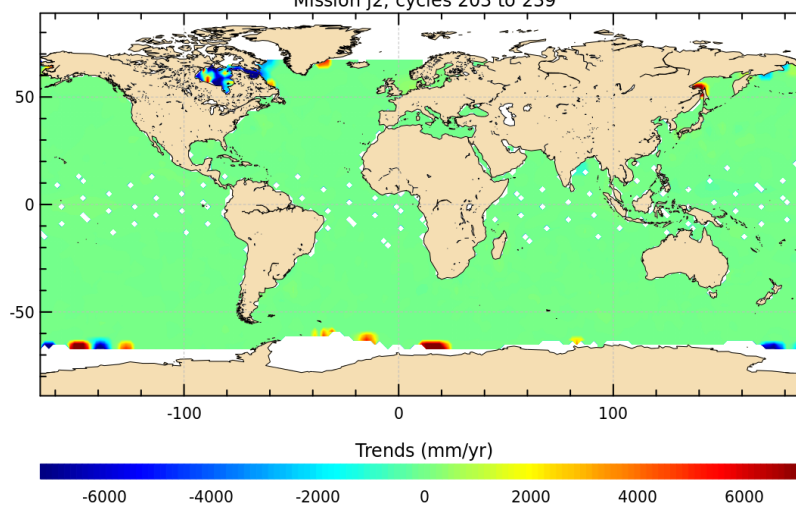
SLA with ERA trends : odd pass numbers

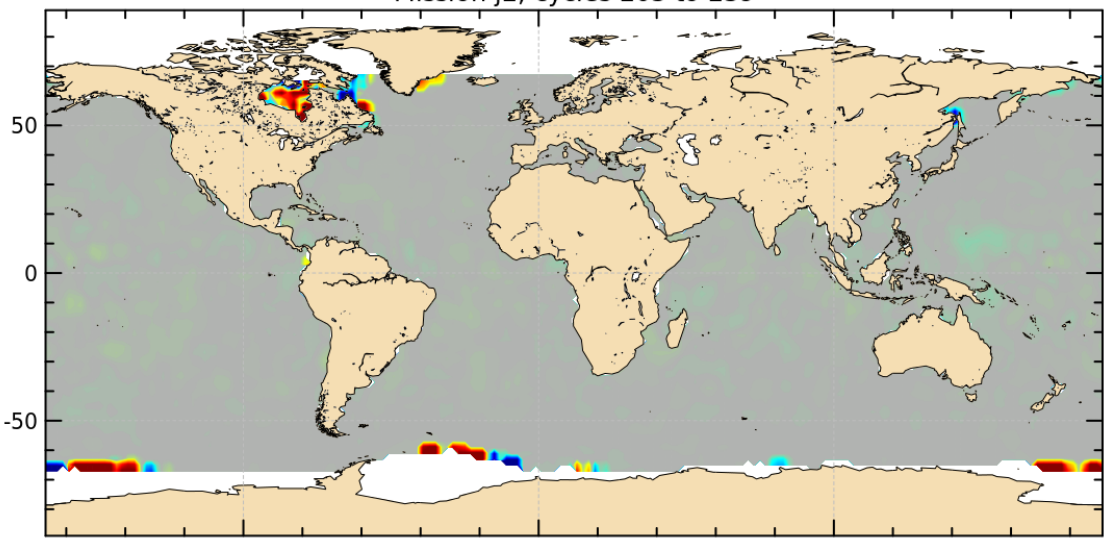
Mission j2, cycles 203 to 239



SLA with ECMWF trends : odd pass numbers

Mission j2, cycles 203 to 239



Diagnostic type : Mono-mission 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><p>SLA with ERA trends - SLA with ECMWF trends</p><p>Mission j2, cycles 203 to 239</p><p>Trends (mm/yr)</p><p>-200 -100 0 100 200</p></div>

Diagnostic A204_b (mission j2)

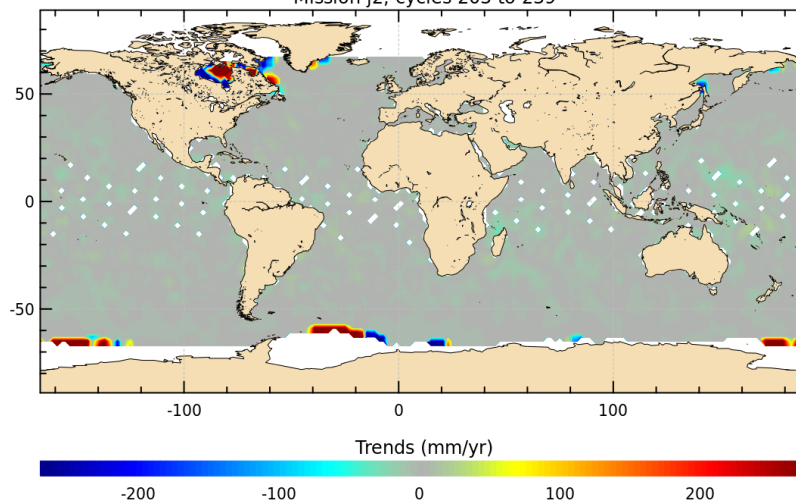
Name : Differences between maps of SLA trends

Input data : Along track SLA

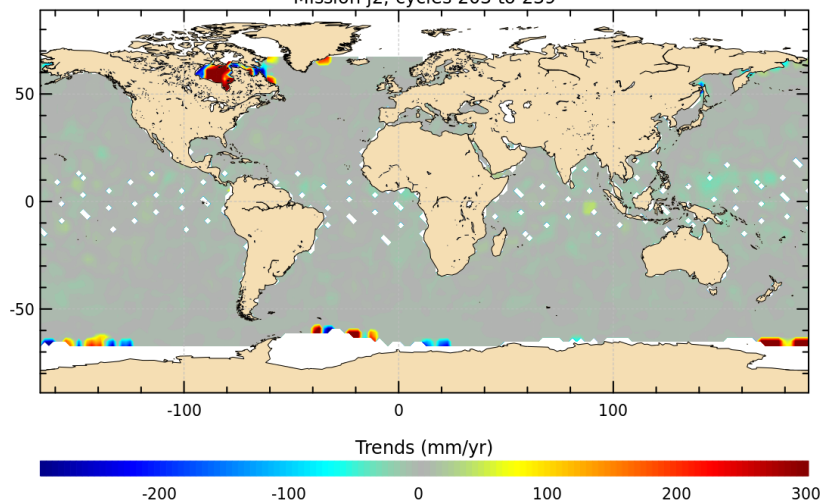
Description : The difference of SLA maps (mean, standard deviation, slope) is calculated from maps derived from diagnostic A203 using successively both altimetric components in the SLA calculation over a given period. This can be done globally, or separating in ascending and descending passes (except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

Diagnostic type : Mono-mission analyses

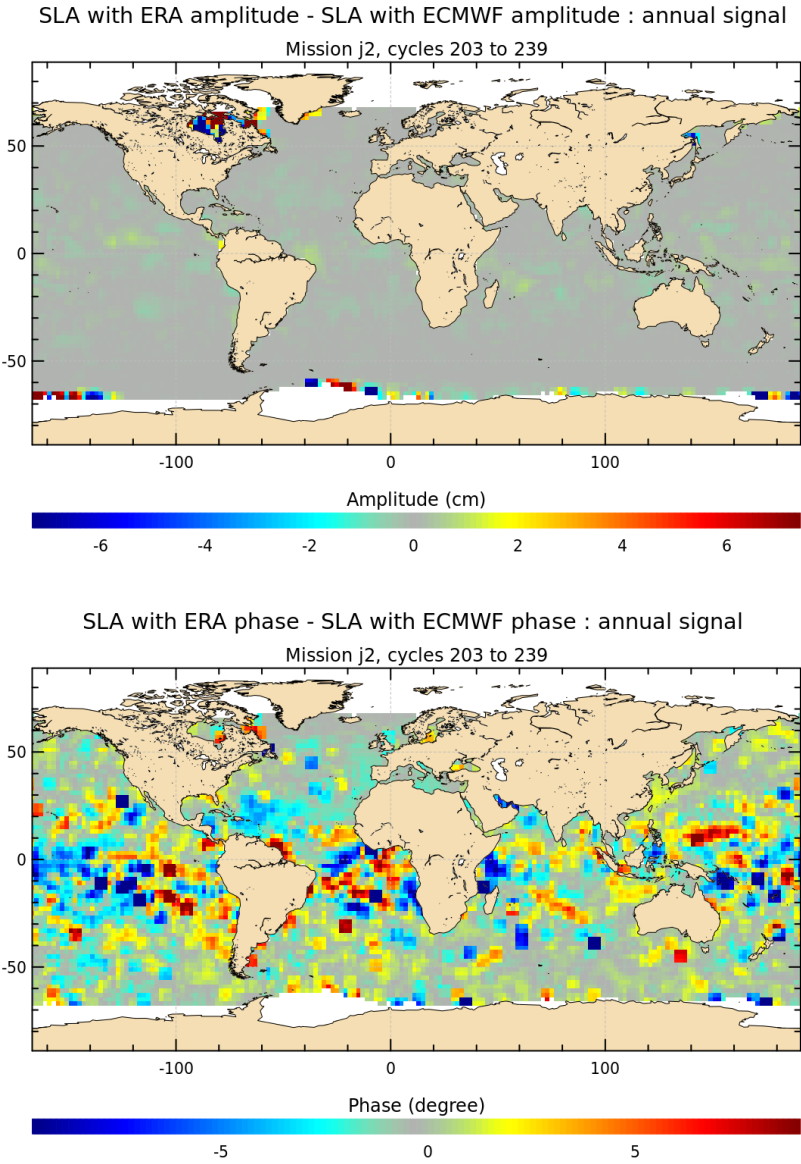
SLA with ERA trends - SLA with ECMWF trends : even pass numbers
Mission j2, cycles 203 to 239



SLA with ERA trends - SLA with ECMWF trends : odd pass numbers
Mission j2, cycles 203 to 239



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).	



Diagnostic A205_b (mission j2)

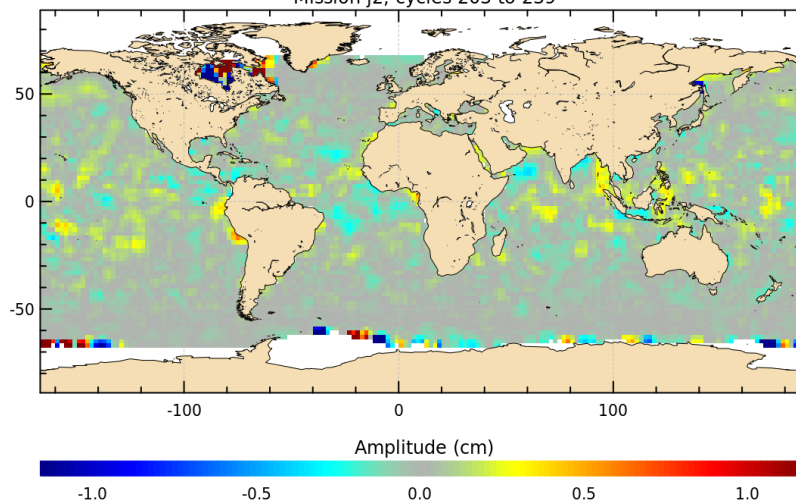
Name : Differences between maps of SLA amplitude and phase

Input data : Along track SLA

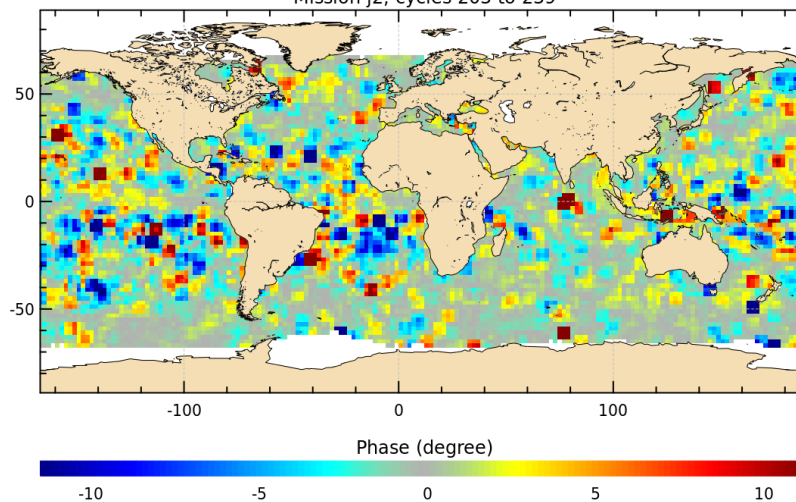
Description : The difference of SLA maps (mean, standard deviation, slope) is calculated from maps derived from diagnostic A203 using successively both altimetric components in the SLA calculation over a given period. This can be done globally, or separating in ascending and descending passes (except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

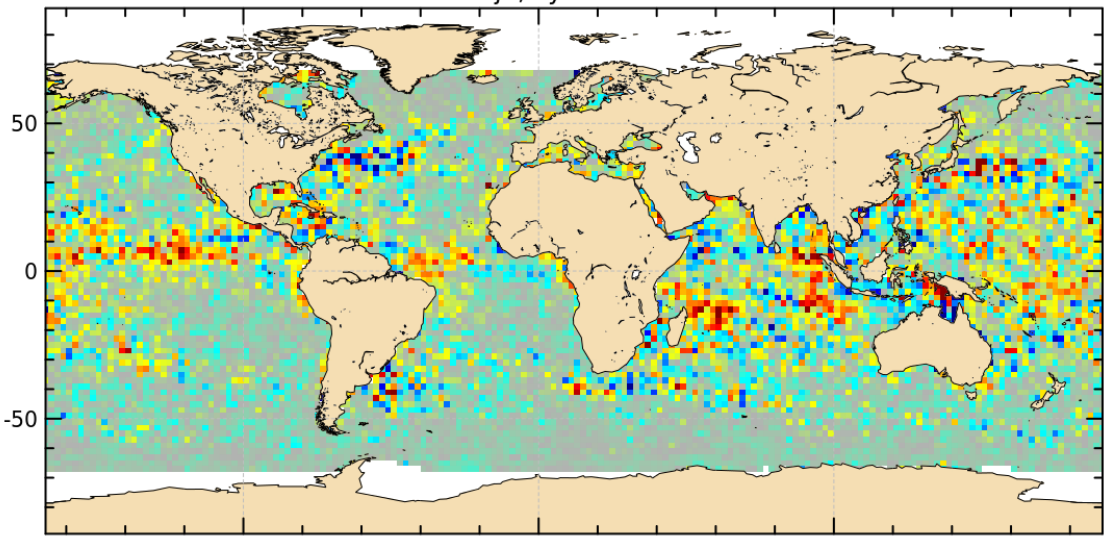
Diagnostic type : Mono-mission analyses

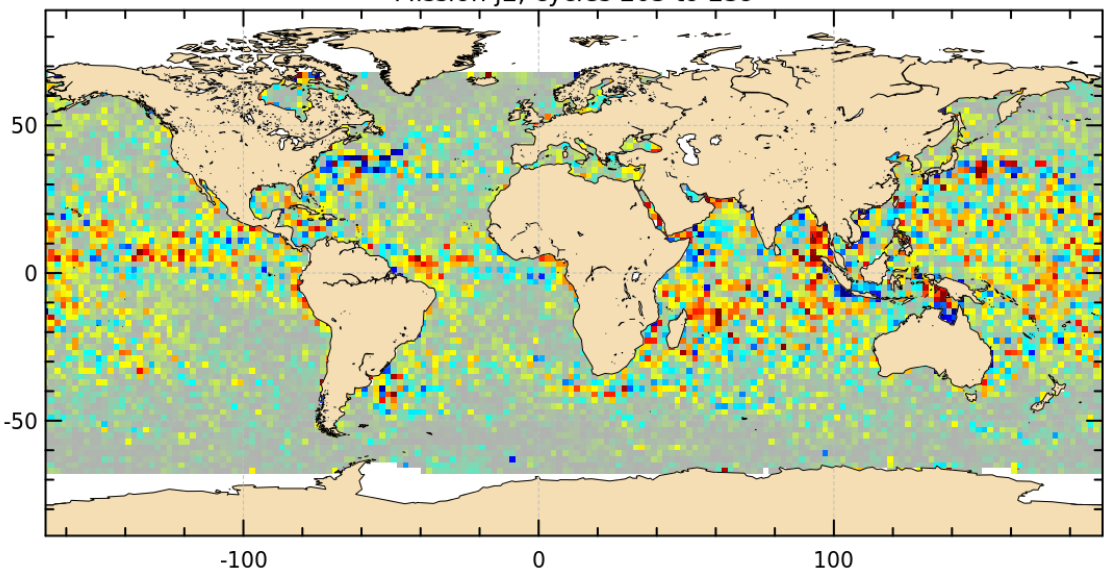
SLA with ERA amplitude - SLA with ECMWF amplitude : semi-annual signal
Mission j2, cycles 203 to 239



SLA with ERA phase - SLA with ECMWF phase : semi-annual signal
Mission j2, cycles 203 to 239



Diagnostic type : Mono-mission 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 ERA) - VAR(SLA with ECMWF)</div> <div>Mission j2, cycles 203 to 239</div>  <div>Difference of variances (cm²)</div> <div>-505</div>	

Diagnostic type : Mono-mission analyses	Diagnostic A210_a (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.	
	<div>VAR(SLA with ERA) - VAR(SLA with ECMWF) for FILTER HF</div> <div>Mission j2, cycles 203 to 239</div>  <div>Difference of variances HF (cm^2)</div> <div>-6 -4 -2 0 2 4 6</div>	

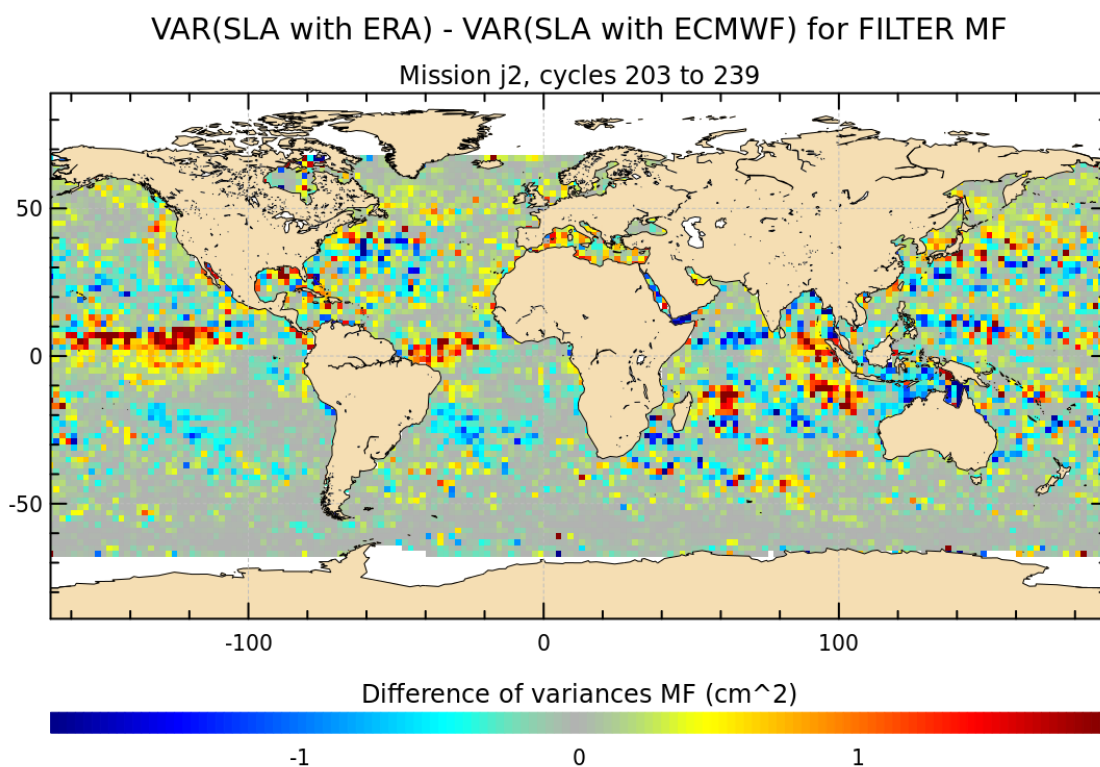
Diagnostic A210_b (mission j2)

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 : Mono-mission 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 : Mono-mission analyses

