### Perfo radiometre: Mesures 5E vs P2

<table>
<thead>
<tr>
<th>Study variable</th>
<th>TRO_HUM_RAD_ALG02</th>
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<td>TRO_HUM_RAD_ALG06</td>
</tr>
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<td>Missions</td>
<td>AltiKa (al)</td>
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**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 A003 (mission al)

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 A004_a (mission al)

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

Input data: Along track altimetric components

Description: The periodogram derived from temporal and global altimetric component differences is calculated from cycle by cycle monitoring of altimetric component differences (derived from diagnostic A001). It is calculated from the mean or the variance differences. The Periodogram can be calculated for all the periods, but it can be focused on a dedicated period.
**Diagnostic A101_a (mission al)**

**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 A101_b (mission al)

**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 A102 (mission al)**

**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).

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**Graphs**

1. \( \text{\textit{vers}}: \text{VAR(SSH with TRO\_HUM\_RAD\_ALG02)} - \text{VAR(SSH with TRO\_HUM\_RA}} \)
   - Mission al, cycles 1 to 23
   - Mean = -0.9382
   - StdDev = 0.1716

2. \( \text{\textit{rs}}: \text{VAR(SSH with TRO\_HUM\_RAD\_ALG02)} - \text{VAR(SSH with TRO\_HUM\_RAD}} \)
   - Mission al, cycles 1 to 23
   - Mean = -0.7392
   - StdDev = 0.1576

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**Diagnostic type**: Mono-mission analyses
Diagnostic A103 (mission al)

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).
**Name**: Differences between maps of SSH crossovers

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

**Description**: The differences between maps of SSH crossovers (derived from diagnostic A103) are calculated from the SSH crossover differences (mean, standard deviation) using successively both altimetric components in the SSH calculation. SSH crossovers are the differences between ascending and descending passes for time differences between both passes lower than 10 days (in order to reduce the effect of the oceanic variability).
Diagnostic A105 (mission al)

Name: Differences between SSH crossovers vs coastal distance

Input data: Sea Surface Height (SSH) crossovers

Description: The differences of SSH variances at crossovers are plotted in function of coastal distance, latitudes and longitudes.
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 A201.b (mission al)

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 A201_c (mission al)

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.
**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.

![East hemisphere MSL (0, 180) degrees east](image)

**East hemisphere MSL (0, 180) degrees east**

Mission al, cycles 1 to 23

- SLA with TRO_HUM_RAD_ALG02 Slope = -7.26 mm/yr [L.S.R. = 0.837]
- SLA with TRO_HUM_RAD_ALG06 Slope = -6.41 mm/yr [L.S.R. = 0.895]

![West hemisphere MSL (-180, 0) degrees east](image)

**West hemisphere MSL (-180, 0) degrees east**

Mission al, cycles 1 to 23

- SLA with TRO_HUM_RAD_ALG02 Slope = 11.1 mm/yr [L.S.R. = 0.494]
- SLA with TRO_HUM_RAD_ALG06 Slope = 12 mm/yr [L.S.R. = 0.529]
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.
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 A202_a (mission al)

**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 A202_b (mission al)

**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.
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 al)**

**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.
**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 A204_a (mission al)**

**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).

![Trends (mm/yr)](image)
**Diagnostic A204_b (mission al)**

**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).

![HUM_RAD_ALG02 trends - SLA with TRO_HUM_RAD_ALG06 trends](image)

**Trends (mm/yr)**: 

-4 | -2 | 0 | 2

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![HUM_RAD_ALG02 trends - SLA with TRO_HUM_RAD_ALG06 trends](image)

**Trends (mm/yr)**: 

-2 | 0 | 2
**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).
**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 A206_a (mission al)**

**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.

![Periodogram of SLA](image)

Periodogram of SLA (reference period = 1 year)

Periodogram of SLA (period = [0, 1 year])
Diagnostic A206_b (mission al)

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_c (mission al)

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 A209 (mission al)**

**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.
**Diagnostic A210_a (mission al)**

**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 ($1$ yr $< T < 3$ yrs) and low-frequency ($T > 3$ yrs) signals.

![Map of SLA variance differences](image)

with TRO_HUM_RAD_ALG02) - VAR(SLA with TRO_HUM_RAD_ALG06) for Mission al, cycles 1 to 23

**Difference of variances HF (cm$^2$)**

-6 -4 -2 0 2 4 6
Diagnostic A210_b (mission al)

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 ($1$ yr $< T < 3$ yrs) and low-frequency ($T > 3$ yrs) signals.
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 ($1$ yr $< T < 3$ yrs) and low-frequency ($T > 3$ yrs) signals.

[Map of SLA variance differences with color scale showing the difference of variances BF (cm^2)]