

The future of PISTACH for 2013-2015

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Prototype
Innovant de
Système de
Traitement pour l'
Altimétrie
Côtière et l'
Hydrologie

6th Coastal Altimetry Workshop
Riva del Garda / Italy / 20-21 September 2012

- **Frame and History of the PISTACH project**
- **Current situation and processing**
- **PISTACH evolutions foreseen:**
 - ◆ **Data dissemination**
 - ◆ **New PISTACH processing/product**
 - ◆ **Multi-mission processing**
 - ◆ **Reprocessing needs**
- **Conclusion**

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Frame and History of the PISTACH project

Aim of PISTACH: Improvement of altimetric products over coastal areas and continental waters.



- **Funding : CNES**
- **Contractor : CLS with LEGOS, CEMAGREF, IRD/LMTG/HyBAM.**
- **Study/prototype development: November 2007 → December 2009.**
- **Main activities:**
 - ◆ **Phase 1 : user needs and structure of coastal / hydrological products.**
 - ◆ **Phase 2 : Development of new dedicated algorithms:**
 - » retracking of the waveforms,
 - » wet and dry tropospheric corrections,
 - » local models or high resolution global models for topography, geoid, land cover classification, land water mask,
 - » data editing, etc.
 - ◆ **Phase 3 : prototype implementation, validation and operations during Jason-2 CalVal phases and beyond.**

Current situation and processing

Current situation

- The PISTACH prototype is operated on a daily-basis since 2009. To date, 155 cycles available ~80,000 files...

Current processing

- Inputs of the prototype : Jason-2 Level 2 S-IGDR altimeter products, ECMWF 2D met fields, DEM, geoid,....
- Daily products available:
 - ◆ Coastal products
 - ◆ Hydrological products
- More information + products handbook + data available @ <http://www.aviso.oceanobs.com/en/data/products/sea-surface-height-products/global/coastal-and-hydrological-products/index.html>

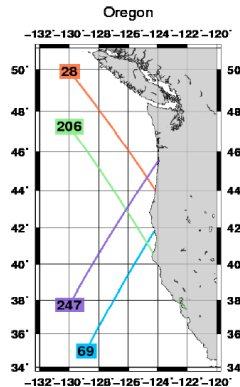
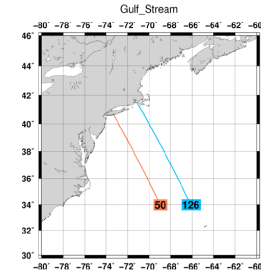
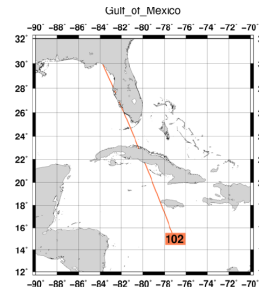
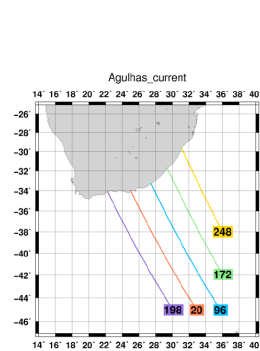


→ global, NetCDF format, free and documented products !!

Level 3 PISTACH products for Coastal Studies

Dedicated regions:

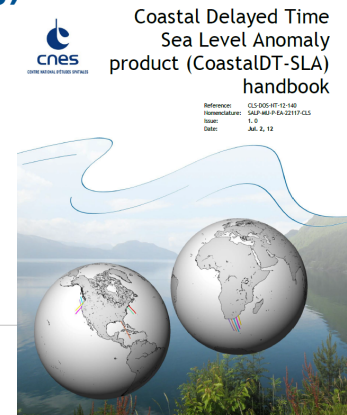
- Agulhas current
- Florida Strait
- Mid Atlantic Bight
- Oregon




Experimental Level 3 PISTACH products calculated

- Sea Level Anomalies calculated (7km/14km filtering, 5Hz sampling)
- Comparison/validation with tide-gauges, current meter and SAR data.
- Data + data use cases + products handbook available on AVISO: <http://www.aviso.oceanobs.com/index.php?id=1527>

→ For more info : see talks from Claire Dufau and Mathilde Cancet during this workshop.




The future

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In front of the past 4 years and of the user's feed-back, CNES is OK to continue the effort. PISTACH operations will be maintained in the future with 4 main objectives :

- **Provide better flexibility** → **new dissemination tool**
- **Provide better products** → **upgrade of products/processing**
- **Provide up-to-date correct^o** → **new dissemination tool**
- **Provide more data sets** → **process more than Jason-2 S-IGDR**
→ **reprocess Jason-2 and others ?**

Evolutions of PISTACH: new dissemination tool

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Dissemination of PISTACH data available via the NEW AVISO tool called ONLINE DATA EXTRACTION SERVICE.



Evolutions of PISTACH: new dissemination tool

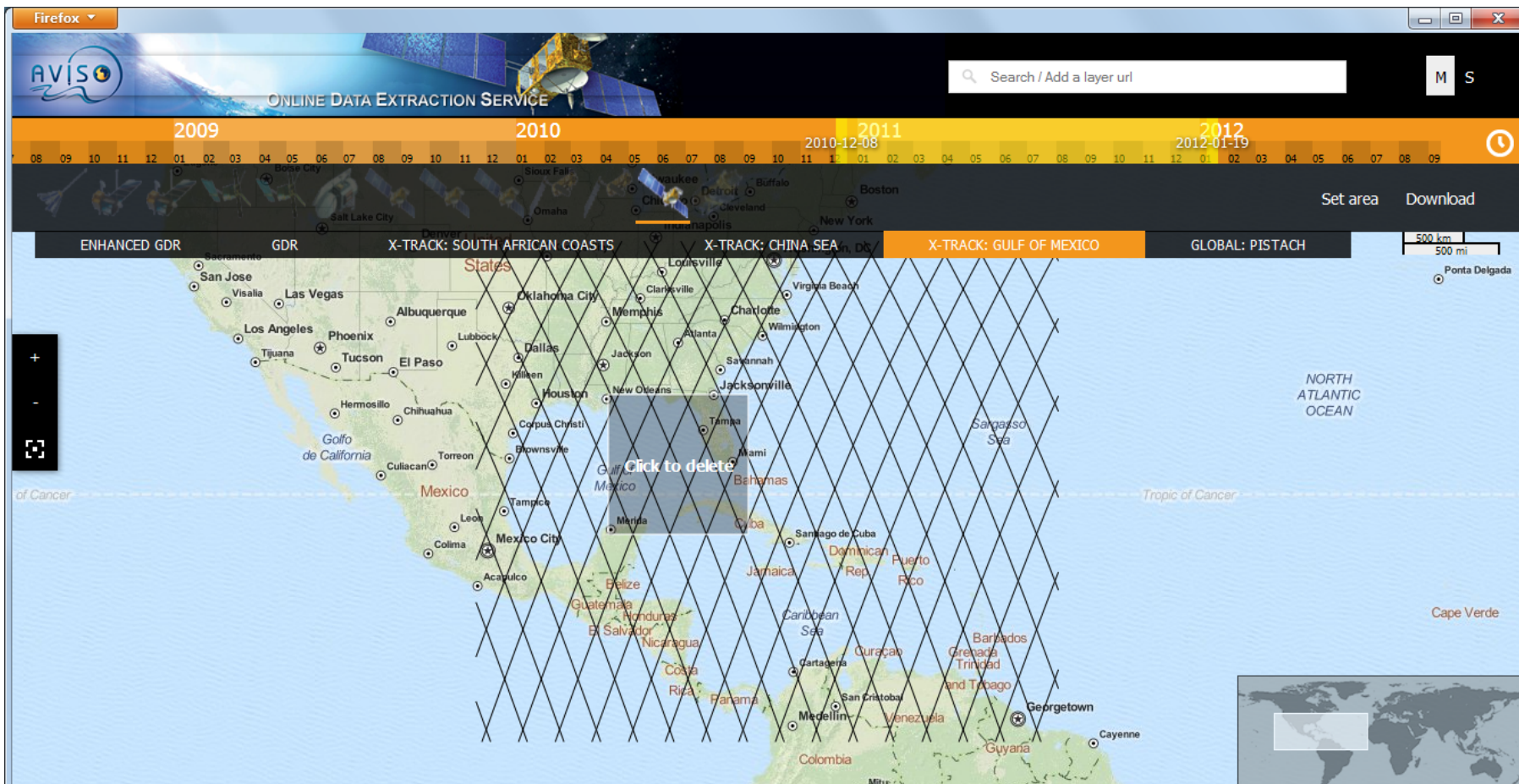


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Dissemination of data available via the NEW AVISO tool called ONLINE DATA EXTRACTION SERVICE

- **Developed in collaboration with LEGOS/CTOH**
- **Why developing a new tool?**
 - ◆ **Temporal / geographical / parameters extraction**
 - ◆ **Up-to-date corrections**
 - ◆ **Large range of data available (official GDR, Enhanced GDR, PISTACH and CTOH products, etc.)**
- **User-friendly interface (demo on CNES Booth during the Venice event next week!) Please come and visit us!**

Evolutions of PISTACH: new dissemination tool



Evolutions of PISTACH: new dissemination tool

AVISO ONLINE DATA EXTRACTION SERVICE

Search / Add a layer url

2009 2010 2011 2012

2010-12-08 2012-01-19

ENHANCED GDR GDR X-TRACK: SOUTH AFRICAN COASTS X-TRACK: CHINA SEA X-TRACK: GULF OF MEXICO GLOBAL: PISTACH

500 km 500 mi

Click to delete

Index of /

This page contains the data selected by the [query](#) you made. If you wish to download many files, please use the FTP server at the following address: <ftp://aviso@10.1.253.145:2100/dae1d647fb05bff1a40a8644f7ca5cf3>

Name	Size	Date Modified
data/		2012-09-13 11:33:45
preview/		2012-09-13 11:33:45

Evolutions of PISTACH: new dissemination tool

The screenshot displays the AVISO ONLINE DATA EXTRACTION SERVICE interface. At the top, there is a search bar and a logo. Below the search bar is a timeline navigation bar with years 2009, 2010, 2011, and 2012. The main map area shows a satellite view of the Gulf of Mexico and surrounding regions, with a grid of X-TRACK tracks overlaid. The tracks are labeled 'X-TRACK: GULF OF MEXICO'. A 'Click to delete' button is visible over the tracks. The interface includes various controls like 'Set area', 'Download', and a scale bar. In the bottom left, there is an 'Index of /' section with a table of files.

Index of /

This page contains the data selected by the [query](#) you made. If you following address: <http://aviso@10.1.253.145:2100/dae1d647fb05b>

Name	Size	Date Modified
data/		2012-09-13 11:33:45
preview/		2012-09-13 11:33:45

Mission: Jason-2 - Product: X-TRACK: Gulf Of Mexico - Cycle: #97 - Tracks: #13 to #254
First data: 2011-02-19 10:44:56 - Last data: 2011-02-28 20:17:40

The preview window shows a detailed view of the X-TRACK tracks over the Gulf of Mexico, with a coordinate grid ranging from 21.0°N to 29.0°N latitude and 89.0°W to 80.0°W longitude.

Evolutions of PISTACH: new dissemination tool

The screenshot displays the AVISO ONLINE DATA EXTRACTION SERVICE interface. At the top, there is a search bar and a user profile icon (M S). Below this is a timeline navigation bar for the years 2009, 2010, 2011, and 2012. The main map area shows the Gulf of Mexico with several X-TRACK tracks overlaid. A tooltip for a track is visible, showing mission details: "Mission: Jason-2 - Product: X-TRACK: Gulf Of Mexico - Cycle: #97 - Tracks: #13 to #254" and "First data: 2011-02-19 10:44:56 - Last data: 2011-02-28 20:17:40". Below the map is an "Index of /data" section with a text box providing an FTP address and a table of data files.

This page contains the data selected by the [query](#) you made. If you wish to download many files, please use the FTP server at the following address: <ftp://aviso@10.1.253.145:2100/6a12ab11529aa41553ef7f1baf1339f5>

Name	Size	Date Modified
↑ [parent directory]		
📄 j2_gdr_130_011_20120112_133203_20120112_142816.nc	538 kB	2012-06-22 08:12:45
📄 j2_gdr_130_013_20120112_152429_20120112_162041.nc	553 kB	2012-06-22 08:13:06
📄 j2_gdr_130_020_20120112_215759_20120112_225412.nc	533 kB	2012-06-22 08:12:39
📄 j2_gdr_130_022_20120112_235025_20120113_004637.nc	558 kB	2012-06-22 08:12:20
📄 j2_gdr_130_037_20120113_135338_20120113_144951.nc	541 kB	2012-06-22 08:11:50
📄 j2_gdr_130_046_20120113_221934_20120113_231547.nc	553 kB	2012-06-22 08:12:53

Evolutions of PISTACH : upgrade of coastal and hydrological products

Already planned improvements in PISTACH products :


- New global tidal model (FES_2012)
- New reference surfaces (MDT-CNES-CLS-2013, MSS?)
- Regional tidal model

Evolutions to be discussed:

- Inputs: IGDR or GDR?
- 20Hz? 5Hz?
- 7km-14km-30kms filtering?
- Improvement of ionospheric correction (by filtering and editing) and SSB?
- Regional bathymetry GEBCO, HYBAM mask (sea/land on Amazonia)?
- Topography calculation based on ACE-2 model,
- Use of a regional Dynamic Atmospheric Correction? Offline DAC?
- New retracking (complementary to OCE3/RED3)? BAGP?
- Wet and dry tropospheric corrections from ECMWF 3D data...

➔ Forum/ User survey before end 2012 to determine your « ideal » product (coastal/hydrological community, assimilating people, etc).

Evolutions of PISTACH : Multi-mission processing

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New missions planned :

- **Jason-1**
- **CRYOSAT-2 (LRM and SAR processing)**
- **AltiKa**
- **... and ENVISAT with ESA support??**

New mission will be integrated following this procedure:

- **Constitution of inputs database (altimeter products at high resolution and auxiliary data)**
- **Prototype tuning specific to the considered mission**
- **Update of associated documentation**
- **Processing on-the-fly**

Evolutions of PISTACH : Reprocessing needs

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Depending on user needs, CNES has to take a decision about a potential reprocessing of PISTACH products

- Which mission?
- How many years of reprocessing?
- What kind of reprocessing? (IGDR/GDR?)

➔ CNES proposes to reprocess Jason-2, Jason-1, CryoSat-2 since 1st January 2010 (later for Cryosat-2).

Conclusion



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CNES will pursue efforts to promote and develop activities in coastal and hydrological zones.

Thanks to various surveys, the user needs have been identified and taken into account but we still need clear guidelines to go one step forward...

(pre-OPS coastal product combining all the progress made by Coastalt and PISTACH initiatives????)...