

# The Satellite Altimetry Yellow Pages

## A Guide for Users

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**A** directory of ocean altimetry data applications, the Satellite Altimetry Yellow Pages, is being developed as a directory of new and potential applications and data users. The Yellow Pages directory is designed to serve as a tool to clearly identify the operational and research applications of these highly effective ocean-observing systems, as well as the key players involved. The directory will serve as a professional guide for satellite altimetry users, both experienced and new.

This directory is designed to be a ready reference for defining satellite altimetry systems, exploiting them, and validating and using the data, and will outline outreach activities associated with the projects. This database of altimetry applications will be the reference standard for the international satellite altimetry community: who is using the data, what they are doing with it, and how you can contact them.

The Yellow Pages will serve as a working guide to define and track altimetry applications, identify key players in each user category, and facilitate communication between current and potential data users. It is also designed to serve as a model working method for close collaboration between scientists and commercial users to clarify distinct uses and to accurately describe and present the application of altimetry data. Interesting and compelling graphics will be featured with each summary.

The Yellow Pages directory will "live" on the AVISO web site, with a link from the NASA Ocean Surface Topography web site. A standardized format is in development that will provide a consistent layout for all entries, and aid information and content searches.

The Yellow Pages directory is hosted and maintained by CNES/CLS and NASA/JPL.

### For more information

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**Coming soon — the Yellow Pages web site**  
<http://www.aviso.oceanobs.com/lp>

### Yellow Pages Directory

#### What is the Yellow Pages directory?

A list of operational and scientific applications of altimetry data, including images, summaries, contacts, and references for more information.

#### What is the purpose of the directory?

To serve as an index of the wide variety of data applications of TOPEX/Poseidon, Jason-1, ERS, and other ocean altimetric satellites. It will serve as an inventory and archive of how this important dataset is used. It will offer an opportunity for exchange of information and a perspective to new users on how others are using the data.

#### How do I use it?

Register your scientific application of the data, including information on who is currently using it operationally, or who may be able to use it. Use it as a guidance document to summarize your work to colleagues, or to present your work to potential users. Raise the profile of your work and share your knowledge and experience with others.

**We'll start the process for you! Send us a 2-page summary of your work. We'll contact you.**

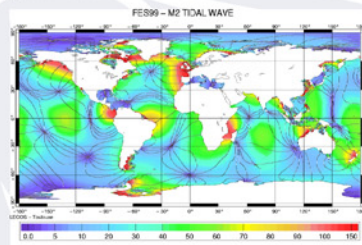
### Application Form

The Yellow Pages directory application form includes:

TITLE	Name of project / topic
Contacts	Names, contact information, who's who
Activities	Mission, project, end use
Products	Data, output, studies
Keywords	Ocean science Climate Monitoring and forecast Large scale circulation and variability Ocean variability and seasons Ocean currents and eddies Orbit Geophysics Atmosphere Tides Sea Mean sea level Wind / Wave / Marine meteo El Niño / La Niña / tropical variabilities Multi-sensors Calibration / Instrument Modeling and data assimilation Regional and coastal studies Marine mammals
Geographic area	Global Regional / Mediterranean Sea Regional / Atlantic Ocean Regional / Pacific Ocean Other (specify)
Category	Research Operational User development
Target audience	Advanced Easy understanding User

### Yellow Page Examples

#### Ocean Tides – Modeling ocean tides on a global scale



#### Summary

Finite element solutions (FES) provide global-scale tide models to communities of scientists, the military, and industrial organizations. The modeling based on FES and assimilation of oceanographic and/or altimetric data makes it possible to obtain total solutions on the open ocean of tides on the order of centimeter and decimeter precision in coastal zones.

#### Contact

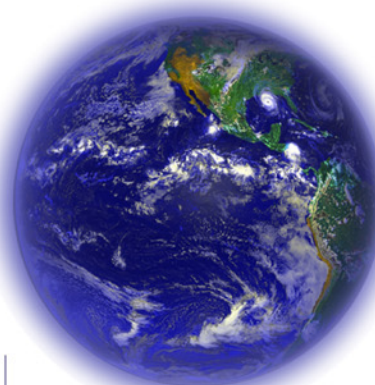
Fabien Lefeuvre, CLS, Fabien.Lefeuvre@cls.fr

#### Web sites

- Jason-1 and ocean tides — [http://lavoisier.jason.oceanobs.com/html/applications/marees\\_fr.html](http://lavoisier.jason.oceanobs.com/html/applications/marees_fr.html)
- Ocean currents (French) — [http://www.shom.fr/fr\\_pagefr\\_act\\_oceanocourant/courant.htm](http://www.shom.fr/fr_pagefr_act_oceanocourant/courant.htm)
- Ocean modeling — <http://www.omp.obs-mps.fr/omp/legos/francais/rech/maree/index.htm>
- LEGOs: <http://www.omp.obs-mps.fr/omp/legos/francais/obs/rosame/index.htm>
- In situ measurements — <http://www.omp.obs-mps.fr/omp/legos/francais/obs/rosame/index.htm>
- ROSAME: <http://www.omp.obs-mps.fr/omp/legos/francais/obs/rosame/index.htm>

#### Scientific publications

- Le Provost, C., M.L. Genco, F. Lyard, P. Vincent, and P. Cancès, Spectroscopy of the world ocean tides from a finite element hydrodynamic model, *J. Geophys. Res.*, 99, 24, 777–24,797, 1994.
- Le Provost, C., F. Lyard, J.M. Molines, M.L. Genco, and F. Rabilloud, A hydrodynamic ocean tide model improved by assimilating a satellite altimeter-derived data set, *J. Geophys. Res.*, 103, 5513–5529, 1998.
- Lefeuvre, F., F.H. Lyard, and C. Le Provost, FES99: a new global tide finite element solution independent of altimetry, *Geophys. Res. Lett.*, 27 (17), 2717–2720, 2000.
- Lefeuvre, F., F. Lyard, C. Le Provost, and E.J.O. Schrama, FES99: a tide finite element solution assimilating tide gauge and altimetric information, *JTECH*, submitted, 2001.



#### The Mercator Bulletin – Ocean analysis and forecast

#### Summary

The French MERCATOR project generates on an operational basis weekly ocean bulletins that bring us a continuous three-dimensional picture of the ocean and offer forecasts for the next two weeks, based on archive and real-time data (ocean-observing satellites like TOPEX/POSEIDON, ERS, and Jason and ENVISAT *in situ* ocean measurements thanks to CORIOLIS).

#### Contact

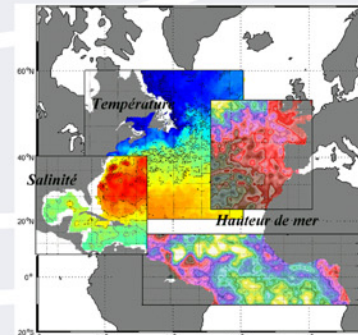
Pierre Bahurel, pierre.bahurel@mercator.com.fr, <http://www.mercator.com.fr>

#### Web sites

- Ocean-observing satellites — <http://lavoisier.jason.oceanobs.com>
- Envisat: <http://envisat.esa.int/>
- In situ measurements — <http://www.ifremer.fr/coriolis>
- CORIOLIS: <http://www.argo.ucsd.edu/>
- ARGO: <http://www.argo.ucsd.edu/>
- Global-scale operational oceanography — <http://www.bom.gov.au/mfrc/ocean/GODAE/>

#### Users

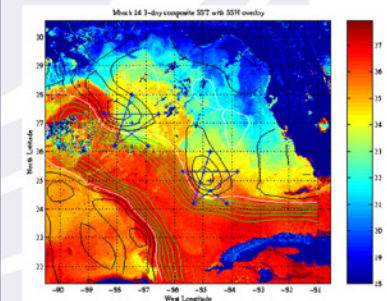
Oceanographic survey campaigns such as the POMME program (Programme Ocean Multidisciplinaire Meso Echelle), which aims to improve our understanding of how the ocean affects climate as a carbon and heat sink, and through its capacity to transform living organisms — <http://www.ipsl.jussieu.fr/POMME/>



#### Marine Mammal Habitats – Oceanographic habitat analysis

#### Summary

The U.S. Minerals Management Service (MMS), in a cooperative venture with the U.S. National Marine Fisheries Service (NOAA NMFS), is conducting studies on sperm whales and deep-water acoustics in the Gulf of Mexico. Oceanographic habitat analysis is being provided by a collaboration between the University of Colorado Center for Astrodynamic Research (CCAR) and Texas A&M University Department of Oceanography (TAMU). The CCAR/TAMU effort provides near real-time analyses of SST (courtesy of JHU/APL) overlaid with SSH provided by CCAR using data from the TOPEX/Poseidon and ERS-2 altimeters. Map shows suggested star-shaped locations for XBT surveys of two cyclonic features where the NOAA ship searched for sperm whales in Spring 2001. This application of remote sensing provided a "route map" for marine mammal biologists working aboard the vessel to locate cyclones (biological "oases") and anticyclones (biological "deserts").



#### Contacts

Robert Leben, University of Colorado  
[leben@colorado.edu](mailto:leben@colorado.edu), <http://ccar.colorado.edu/~leben>  
Douglas Biggs, Texas A&M University  
[dbiggs@ocean.tamu.edu](mailto:dbiggs@ocean.tamu.edu), <http://www-ocean.tamu.edu>

#### Web sites

Ocean-observing satellites:  
SST: <http://fermi.jhuapl.edu/ahrrgm/averages/index.html>  
Altimetry: [http://www.ccar.colorado.edu/~realtime/gom-real-time\\_ssh/](http://www.ccar.colorado.edu/~realtime/gom-real-time_ssh/)  
Altimetry processing: [http://ibis.gsrl.noaa.gov/SAT/pub/papers/iffrence\\_97/](http://ibis.gsrl.noaa.gov/SAT/pub/papers/iffrence_97/)  
Animation of 1996-97: [http://www.ccar.colorado.edu/~leben/iffmex\\_science.html](http://www.ccar.colorado.edu/~leben/iffmex_science.html)  
Ocean color: <http://www.gfc.nasa.gov/govts/earth/environ/carbonbarbon.htm>  
GulfCet marine mammal studies:  
<http://www.gomr.mms.gov/home/pg/regulate/environ/marmam/gulfcet4.html>  
<http://ocean.tamu.edu/Quarterdeck/QD6.1/biggs-wormuth.html>

#### Scientific publications

- Biggs, D. C., R. Leben, and J. G. Ortega-Ortiz (2000). Ship and satellite studies of mesoscale circulation and sperm whale habitats in the northeast Gulf of Mexico during GulfCet II, *Gulf Mex. Sci.*, 18, 15–22.
- Biggs, D. C., G.S. Fargion, P. Hamilton, and R.R. Leben (1996). Cleavage of a Gulf of Mexico Loop Current eddy by a deepwater cyclone, *J. Geophys. Res.*, 101, 20, 629–20,641.
- Sturges, W. and R. Leben (2000). Frequency of ring separations from the Loop Current in the Gulf of Mexico, *J. Phys. Oceanogr.*, Vol. 30, pp. 1814–1819.

#### Users

[http://www.ccar.colorado.edu/~leben/survey\\_design](http://www.ccar.colorado.edu/~leben/survey_design) provides links to online tools for survey planning and design. Several example survey designs are shown to highlight how we coordinate collection of *in situ* data with altimeter overflights and/or mesoscale eddies. Users include those interested in near real-time mesoscale circulation monitoring and sampling by operational satellite altimeters.