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Satellite altimetry: Type of Data and Data Bases



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Satellite Altimetry Data Type

Type Data	Satellite Orbit Altitude	Delivery Delay	
Cord (OGDR)	Predicted	3-5 hour	
CINTERIM Geophysical Data Record (IGDR)	Ducliminouv	1-5 day	
Sensor Interim Geophysical Data Record (SIGDR)	Preliminary		
Ceophysical Data Record (GDR)	Destituted	40-60 day	
Sensor Geophysical Data Record (SGDR)	Kestituted		



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Summary of Error Budget at the End of the Verification Phase

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	OGDR	IGDR ISGDR	GDR SGDR
Altimeter noise	1.7 cm	1.7 cm	1.7 cm
Ionosphere	1 cm	0.5 cm	0.5 cm
Sea State Bias	3.5 cm	2 cm	2 cm
Dry troposphere	1 cm	0.7 cm	0.7 cm
Wet Troposphere	1.2 cm	1.2 cm	1.2 cm
Altimeter range : RSS	4.5 cm	3 cm	3 cm
RMS Orbit (Radial component)	10 cm	2.5 cm	1.5 cm
SSH : Total RSS	11 cm	3.9 cm	3.4 cm
Significant wave height	10% or 0.5 m	10% or 0.4 m	10% or 0.4 m
Wind speed	1.6 m/s	1.5 m/s	1.5 m/s
Sigma0 (absolute)	0.7 dB	0.7 dB	0.7 dB



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Along Track Satellite Altimeter Data Base

	Satellite	Туре	Format	Data Access
Physical Oceanography Distributed Active Archive Center (PO.DAAC) http://podaac.jpl.nasa.gov	GEOS-3 TOPEX/Poseidon Jason-1	OGDR, IGRD, GDR SGDR	Binary, NetCDF	Free
	TOPEX/Poseidon, Jason-1, Jason-2, SARAL/Altika	OGDR, IGRD, GDR SGDR		Free
Archiving, Validation and Interpretation of Satellite Oceanographic data (AVISO) http://www.aviso.altimetry.fr	ERS-1, ERS-2, ENVISAT	GDR SGDR	Binary, NetCDF	
	CryoSat-2	OGDR, IGRD, GDR SGDR		Registration



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Grid Satellite Altimeter Data Base

	Satellite	Туре	Format	Data Access
Archiving, Validation and Interpretation of Satellite Oceanographic data (AVISO) http://www.aviso.altimetry.fr	TOPEX/Poseidon, Jason-1, Jason-2, SARAL/Altika, ERS-1, ERS-2, ENVISAT, GFO-1 CryoSat-2	SLA, ADT	NetCDF	Registration



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Mean Sea Surface Models



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Mean or Climatic Dynamic Topography



Map of climatic or mean dynamic topography (cm) calculated relative to 1500 m are based on oceanographic, drifter and satellite altimetry data (RIO-04). Isoline are lead through 20 cm

The circle shows area of quasi stationary eddy. The shaped line shows a location of 202 descending tracks of satellites TOPEX/Poseidon and Jason-1.



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Map of synoptic topography (cm) calculated as superposition of MDT and SLA on 15 September 2006. Isoline are lead through 20 cm. Shading allocates areas of negative SLA values.

The circle shows area of quasi stationary eddy. The shaped line shows a location of 202 descending tracks of satellites TOPEX/Poseidon and Jason-1.



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Map of synoptic topography (cm) calculated as superposition of MDT and SLA on 15 February 2007. Isoline are lead through 20 cm. Shading allocates areas of negative SLA values.

The circle shows area of quasi stationary eddy. The shaped line shows a location of 202 descending tracks of satellites TOPEX/Poseidon and Jason-1.



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Time Variability of Absolute or Synoptic Dynamic Topography



Time variability of synoptic dynamic topography along 202 track. Isoline are lead through 20 cm Grey color allocates areas of negative values of sea level anomalies

synoptic dynamic topography

- < 140 cm

— 140 ÷ 170 cm (Gulf Stream)

- < 160 cm



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Other Satellite Altimeter Data Base

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	Туре	Format	Data Access
Radar Altimeter Database System http://rads.tudelft.nl/rads/rads.shtml	Along track data	ASCII	free
Global Reservoir and Lake Elevation Database http://www.pecad.fas.usda.gov/ cropexplorer/global_reservoir/	Hydrology	ASCII	free
Hydrology from Space http://www.legos.obs- mip.fr/soa/hydrologie/hydroweb/	Hydrology	ASCII	registration
River & Lake http://tethys.eaprs.cse.dmu.ac.uk/Ri	Hydrology	ASCII	registration



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Helpful Information

On site of Space Research Institute of Russian Academy of Sciences

(http://www.iki.rssi.ru/print.htm), is the book O. Yu. Lavrova, A. G. Kostianoy, S. A. Lebedev, V. I. Mityagina, A. I. Ginzburg, N. A. Sheremet "Complex Satellite Monitoring of the Russian Seas" (in russian).





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Helpful Information

On site of A.M. Obukhov Institute of Atmospheric Physics of Russian Academy of Sciences

(http://www.ifaran.ru/science/dissertations/Lebedev_2014.html), is the doctoral and abstract thesis "Satellite Altimetry Caspian Sea"

(in russian) by Sergey A. Lebedev.





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Спасибо за внимание

Thank you for your attention



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