The International DORIS Service
Current Status and Future Plans

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G2.1-15590

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DORIS and IDS in a few words

The **DORIS** system has been working since 1990

Now: 6 satellites, 57 ground stations, 45 co-locations with other IERS techniques

Future: several more satellites to come up to 2030+, 4G beacon in development

The **International DORIS Service** is an IAG service created in 2003

Now: 6 analysis centers, 2 data centers, 1 combination center, 1 Central Bureau, 1 Governing Board, 1 Analysis Working Group
Events: IDS Workshop, 1 every 2 years (with OSTST meeting in Europe) + Analysis Working Group (AWG) meetings, 1 or 2 every year

Plan for 2017:

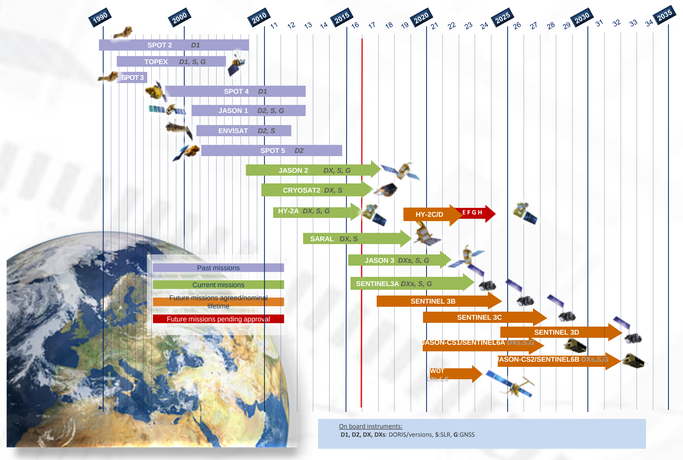
DORIS/RINEX format, ITRF2014-related issues to address, USO's sensitivy to SAA…

And beyond:

Working Group on NRT data

IDS retreat to prepare the future

DORIS: A secure future up to 2030+



Developments in progress

4G beacon

New electronic (with up to-date components)

Antenna cables allowing to install it up to 50m from the beacon

Initial deployment could start mid 2019

Radio frequency characterization of ALCATEL ground antenna (1st generation, now fully removed)

A new phase law have been defined, significantly different from the phase law defined in the IDS documentation → To be tested by IDS Acs

Co-locations with VLBI

A big challenge because of Electromagnetic Compatibility problems. While the VLBI system is designed to receive extreme weak signals down to –110 dBm, the DORIS beacon emits on a 2036 MHz frequency of +40 dBm. Solutions found at Greenbelt and Wetzell with the VGOS stations after many DORIS/VLBI RF compatibility tests performed under real conditions.

DORIS @ Wettzell: a good compromise
- VLBI: enough attenuation through distance and barrier
- DORIS: Operation on demand: 25% duty cycle, no effect on satellite reception
- DORIS: elevation mask around 10°: acceptable
- Co-location: excellent ties with VLBI, SLR, GNSS, SAR
- Excellent collaboration between CNES/IGN and BKG to define installation requirements

DORIS antenna « WEUC » and 20m RTW

IDS life

- Frank Lemoine (NASA/GSFC), new Chair of the IDS GB for 2017-2020
- Creation of the WG « Near Real Time data »

Objective: to implement delivery of DORIS data in NRT for assimilation in ionospheric model and other potential rapid products

Chair: Denise Dettmering (DGFI/TUM)

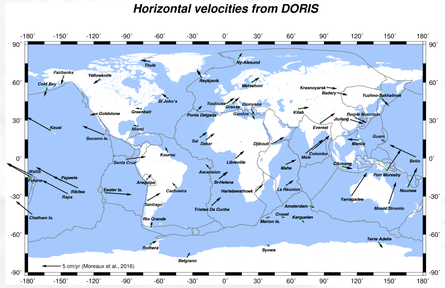
- Forthcoming meetings:

AWG Meeting, London, 22-24 May 2017
First IDS Retreat (TBD)
2nd AWG Meeting (TBD)

DORIS products

products	content	latency	sample interval	archive locations	format	Provider	missions
station coordinates	time series of station coordinates differences	quaterly	1 week	CDDIS ; IGN	stcd	IDS CC, ACs	combination
orbits	orbit ephemerides	3-4 weeks	1 min	CDDIS ; IGN	sp3c	ssa (official orbits), ACs	all satellites
geocenter motion	TRF origin solution	occasionally	1 week	CDDIS ; IGN	geoc	ACs	combination
Earth Orientation Parameters	polar motion	occasionally	1 day	CDDIS ; IGN	eop	ACs	combination
ionosphere	ionospheric corrections	week	10 s	CDDIS ; IGN	iono	ssa	en1, ja1, sp2, sp4, sp5, top
reference frame	station coordinate and velocity solution	yearly	global	CDDIS ; IGN	sinex	CC	combination
SINEX	series of station coordinate solutions	quaterly	1 week	CDDIS ; IGN	sinex	IDS CC, ACs	combination

IDS Analysis activities



Combination Center:

Extension of the combined series contributing to ITRF2014

Construction of the so-called DPO2014 (DORIS extension to ITRF2014 for POD) based on DORIS combined cumulative solution

Analysis Centers:

Implement DORIS RINEX data processing

Include Jason-3 and Sentinel-3A

Switch to ITRF2014 for IDS operational products

Evaluation of DTRF2014, ITRF2014 and JTRF2014

Issues to be addressed:

Scale issues on SPOT-5 (sawtooth pattern)

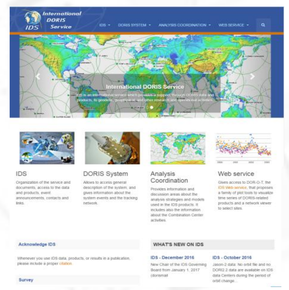
Increase of DORIS residuals from Jan. 2013 for all missions

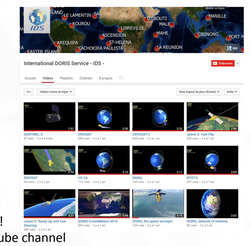
Jason-2 and Jason-3 USOs: sensitivity to radiations of SAA

New phase law for ALCATEL ground antenna

IDS web site

http://ids-doris.org

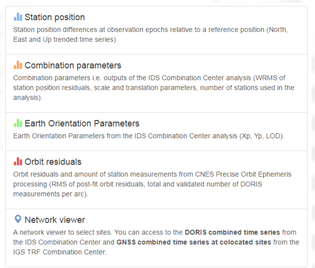


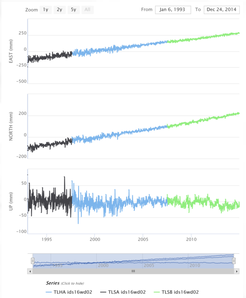


NEW!
YouTube channel

IDS web service

http://ids-doris.org/webservice





IDS Newsletters

#1 April 2016

#2 July 2016

#3 December 2016

The IDS Newsletter was launched in April 2016 with the aim to provide regular information on the DORIS system and the life of the International DORIS Service to a wide audience, from the host agencies to the other sister services.

DORIS Special Issue

« Scientific Applications of DORIS in Space Geodesy »
Advances in Space Research (Dec. 15, 2016. Vol. 58, Number 12)
18 papers , 5 themes:
(1) ITRF2014;
(2) (2) DORIS Ultra Stable Oscillator (USO) -- Jason2;
(3) Precise Orbit Determination;
(4) DORIS System and Network;
(5) Intertechnique comparisons of DORIS Products