

JOINT CSTG/IERS DORIS PILOT EXPERIMENT TERMS OF REFERENCE

Chairperson: G. Tavernier (France)

I - Introduction

DORIS was developed for precise orbit determination and precise positioning on the Earth.

DORIS is one of the four techniques contributing to the International Earth Rotation Service (IERS). The 3 other techniques have an International Service to provide data and products to the scientific community. There is an increasing demand among the international scientific community for a similar service dedicated to DORIS.

On the occasion of the CSTG and IERS Directing Board meetings held in Birmingham in July 1999 in the framework of IUGG99, it was decided to initiate a DORIS Pilot Experiment with a view to establish an International DORIS Service.

II - Objectives

The primary objective of the future IDS, an international collaboration of organizations which operate or support DORIS components, will be to provide a service to support, through DORIS data products, geodetic, geophysical, and other research and operational activities.

The aim of the DORIS Pilot Experiment is to assess the need and the feasibility of an International DORIS Service.

III - The Products

The future IDS will collect, archive and distribute DORIS observations data sets of sufficient accuracy to satisfy the objectives of a wide range of scientific and operational applications and experimentation. These data sets will be used by IDS to generate a variety of scientific products with differing applications, timeliness, detail, and temporal resolution, such as:

- High accuracy satellite ephemeris
 - Three-dimensional coordinates and velocities of the IDS stations
 - Time-varying geocenter coordinates
 - Earth rotation parameters
 - Static and time varying coefficients of the Earth's gravity field
 - Surface meteorology, tropospheric and ionospheric information
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IV - The Structure

The future IDS will accomplish its mission through the following components:

- Network of transmitting stations
 - DORIS on-board packages for LEO satellites
 - Data Centers and Data Flow Coordinator
 - Analysis Centers and Analysis Center Coordinator
 - Central Bureau
 - Directing Board
 - Associate Members
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V - Organization of the DORIS Pilot Experiment

The DORIS Pilot Experiment is initiated by a Steering Committee in charge of:

- preparing and broadcasting a Joint CSTG/IERS Call for Participation
- setting up the review and selection of proposals for IDS components. For Stations: a Selection Group will be appointed.

To start the Experiment, the Steering Committee will appoint:

- a Data and Product Formats Working Group to propose exchange formats
- a Data Flow Coordinator to define the methods of data exchange between:
 - Control Centers and Data Centers for measurements and ancillary information (spacecraft maneuvers, receiver status, meteorological data ...)
 - Analysis Centers and Data Centers for products and data
- an Analysis Coordinator chairing an Analysis Working Group in charge of:
 - helping newcomers in DORIS data processing
 - defining an intercomparison plan to assess the quality and performance of the products of the various centers
 - proposing ways to improve data processing

The Analysis Coordinator will coordinate the activities of the Analysis Centers.

The Steering Committee will propose the statutes of the future Directing Board (membership, nomination and election of members, election and role of Chairperson, frequency of meetings...) and Associate Members.

According to the submitted proposals and to the outcome of the activity of the selected components, the Steering Committee will:

- Check that there are at least two global data centers in two different countries
- Establish the products to be initially considered as IDS products
- Examine the operational nature of the Central Bureau
- Assess the opportunities to set up new stations and to fly additional receivers

Paying particular care to:

- The international character of the DORIS Pilot Experiment
- Long term involvement of contributing organizations

to be ready to appeal to CSTG and IERS for the adoption of the IDS.

The chairperson is in charge of drawing up a DORIS Pilot Experiment Annual Report.

The DORIS Pilot Experiment Steering Committee membership is as follows:

- Gilles TAVERNIER (chairperson)
CNES, Toulouse, France
- Carey NOLL (CDDIS, IERS DORIS Data Center): Data Flow Coordinator
NASA GSFC, Greenbelt, USA
- John RIES (DORIS representative to IERS)
University of Texas/CSR, Austin, USA
- Laurent SOUDARIN
CLS, Toulouse, France
- Pascal WILLIS (DORIS representative and Coordinating Center to IERS)
IGN/LAREG, Marne la Vallée, France
- Kristine LARSON Stations Selection Group chairperson
University of Colorado, Boulder, USA
- XXX (Analysis Coordinator)

The DORIS Pilot Experiment Data and Product Formats Working Group:

- John RIES (chairperson)
- Jean-Paul BERTHIAS
CNES, Toulouse, France
- Werner GURTNER
Astronomical Institute, University of Bern, Switzerland
- Carey NOLL
- Pascal WILLIS
- Jean-Jacques VALETTE
CLS, Toulouse, France

The mandate of the group is to:

- Analyze the existing DORIS measurements format used by IERS Data Centers and check whether it needs some accommodation to be able to handle the measurements of the second generation receivers (JASON1, ENVISAT, SPOT5...).
- The above-mentioned format is used to exchange preprocessed data. The group will prepare a proposal for a "raw measurements" format. It could be a RINEX format extension for the DORIS data. A limited "raw data" set could be prepared, available for Analysis Centers willing to develop an expertise on DORIS data processing.
- Propose a format for ancillary information necessary to process DORIS data
- Propose formats for the products to be delivered to the Data Centers

The DORIS Pilot Experiment Stations Selection Group:

- Kristine Larson (chairperson)

The Group should include a representative of the DORIS Stations Installation and Maintenance Service (IGN SIMB) and scientists involved in various applications such as geodesy, geophysics, altimeter calibration, tide gauges, ITRF collocation ...)

The mandate of the group is to:

- Define Sites Criteria (International Space Geodetic and Gravimetric Network - ISGN, DORIS Stations Installation and Maintenance Service...), taking into account the DORIS system specificity (jamming, interference...).
- Analyze the proposals with respect to these Criteria.
- Propose a list of stations according to the number of beacons available for the Experiment, as stated by the Steering Committee.

The DORIS Stations Installation and Maintenance Service together with the selected candidate will then manage the installation in the same way as for the existing permanent network.

**V - Address**

For more information please contact:

Gilles Tavernier, CNES, France
Chairperson, CSTG DORIS Pilot Experiment

Gilles.Tavernier@cnes.fr

CNES
DSO/ED/AL/MA - Bpi 2002
18, avenue Edouard Belin
31401 TOULOUSE CEDEX 4
FRANCE



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