

Project POPDAT: concept and first results

Klaus Briß (1), Ludmil Bankov (2), François Crespon (3), Denis Dudkin (7), Csaba Ferencz (5), Andrey Girenko (4), Valery Korepanov (7), Andrii Kuzmych (8), Georgii Lizunov (8), Pencho Marinov (2), Olena Piankova (8), Ivan Price (3), Dorota Przepiórka (6), Hanna Rothkaehl (6), Tetyana Shtus (7), Peter Steinbach (5), Arnold Sterenharz (4), Any Vassileva (2)

- (1) TUBerlin, Germany
- (2) Space Research and Technology Institute BAS, Bulgaria
- (3) NOVELTIS SAS, France
- (4) ECM Office, Germany
- (5) Eötvös Loránd University, Hungary
- (6) Space Research Center PAS, Poland
- (7) Lviv Center of Institute of Space Research NASU-SSAU, Ukraine
- (8) Space Research Institute NASU-SSAU, Ukraine

POPDAT is FP7-collaborative-project. Acronym POPDAT comes from the full project title “Problem-oriented Processing and Database Creation for Ionosphere Exploration”. Project brings together eight scientific teams from five European countries for the period June 2011 - May 2013. More details one can find at site www.popdat.org. In this report we present main ideas, achievements and prospects of the project.

POPDAT research idea consists in composition of Wave Catalogs describing the ionosphere wave fields. Wave Catalogs are developed by project participants, experts in processing of ionospheric observations, to answer several crucial questions: How make the old space missions more valuable? How provide scientific community with a new insight on wave processes that take place in the ionosphere? The answer is to create public data mining service accessing a collection of Wave Catalogs that characterize a huge number of Atmosphere Gravity Waves, Travelling Ionosphere Disturbances and Whistlers events.

Making of the Wave Catalogs is closely related with another major project task, problem-oriented processing of large sets of observation data. Thus, “old” and apparently “used” resources of scientific information become a source of new “level-2” data addressed to a broad range of customers, whether expert-scientists, students or amateurs, who can use them under their own scientific and/or educational purposes (even including scientific tasks that never being planned by the authors of original space experiments).

Ionosphere Waves Service is designed to support flexible access to the Wave Catalogs. In frame of POPDAT project, Ionosphere Waves Service is a top of iceberg. It regroups databases of specific events extracted from archives of about ten space missions which end users can access by applying specific searches and by using statistical analysis modules for their domain of interest. The scientific applications covered by the Ionosphere Waves Service are related to earthquake precursors, ionosphere climatology, geomagnetic storms, troposphere-ionosphere energy transfer, trans-ionosphere link perturbations, etc.

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