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### The ESA FELYX High Resolution Diagnostic Data Set System Design and Implementation

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Abstract. Felyx is currently under development and is the latest evolution of a generalised High Resolution Diagnostic Data Set system funded by ESA. It draws on previous prototype developments and experience in the GHRSSST, Medspiration, GlobColour and GlobWave projects. In this paper, we outline the design and implementation of the system, and illustrate using the Ocean Colour demonstration activities.

Felyx is fundamentally a tool to facilitate the analysis of EO data: it is being developed by IFREMER, PML and Pelamis. It will be free software written in python and javascript. The aim is to provide Earth Observation data producers and users with an opensource, flexible and reusable tool to allow the quality and performance of data streams from satellite, in situ and model sources to be easily monitored and studied. New to this project, is the ability to establish and incorporate multi-sensor match-up database capabilities. The systems will be deployable anywhere and even include interaction mechanisms between the deployed instances.

The primary concept of Felyx is to work as an extraction tool. It allows for the extraction of subsets of source data over predefined target areas(which can be static or moving). These data subsets, and associated metrics, can then be accessed by users or client applications either as raw files or through automatic alerts. These data can then be used to generate periodic reports or be used for statistical analysis and visualisation through a flexible web interface.

Felyx can be used for subsetting, the generation of statistics, the generation of reports or warnings/alerts, and in-depth analyses, to name a few.

There are many potential applications but important uses foreseen are:

- \* monitoring and assessing the quality of Earth observations (e.g. satellite products and time series) through statistical analysis and/or comparison with other data sources

\* assessing and inter-comparing geophysical inversion algorithms

\* observing a given phenomenon, collecting and cumulating various parameters over a defined area

\* crossing different sources of data for synergy applications

The services provided by felyx will be generic, deployable at users own premises, and flexible allowing the integration and development of any kind of parameters. Users will be able to operate their own felyx instance at any location, on datasets and parameters of their own interest, and the various instances will be able to interact with each other, creating a web of felyx systems enabling aggregation and cross comparison of miniProds and metrics from multiple sources.

Initially two instances will be operated simultaneously during a 6 months demonstration phase, at IFREMER – on sea surface temperature and ocean waves datasets – and PML – on ocean colour.

[Conference Paper](#) (PDF, 2631 KB)

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