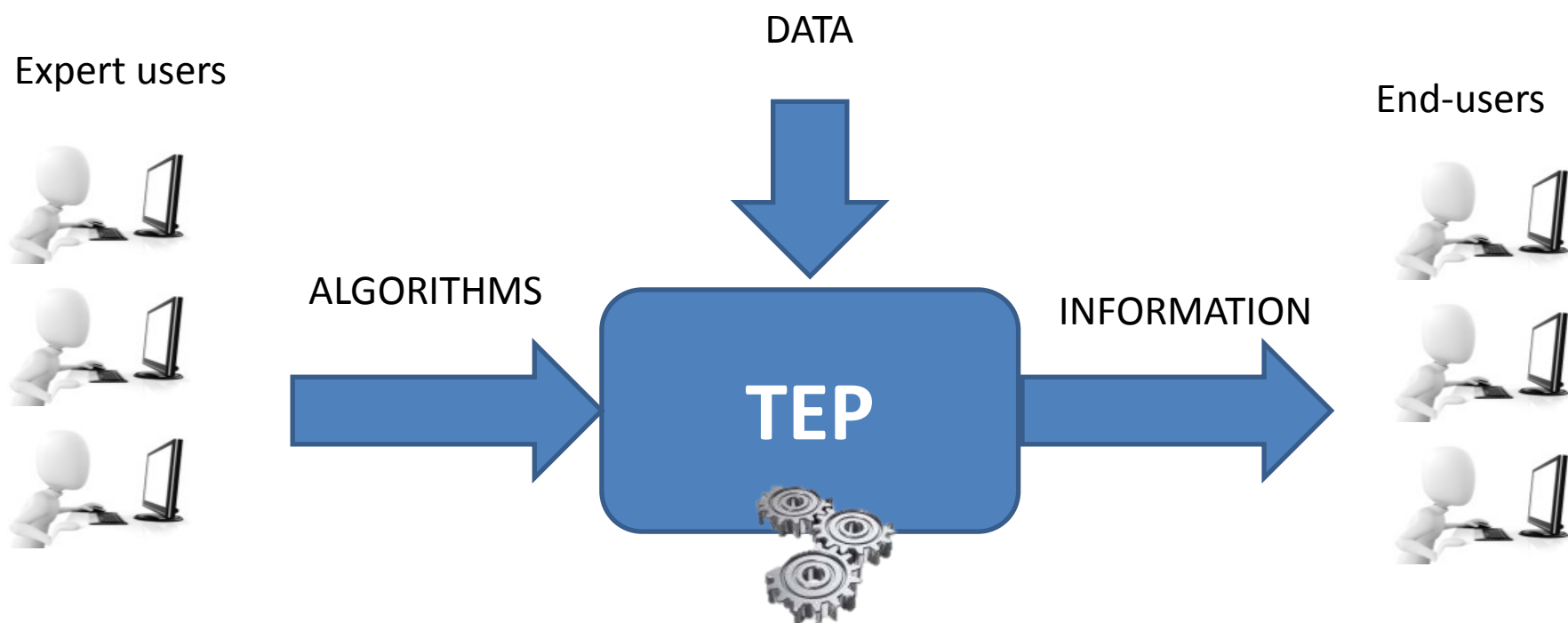


The Coastal Thematic Exploitation Platform

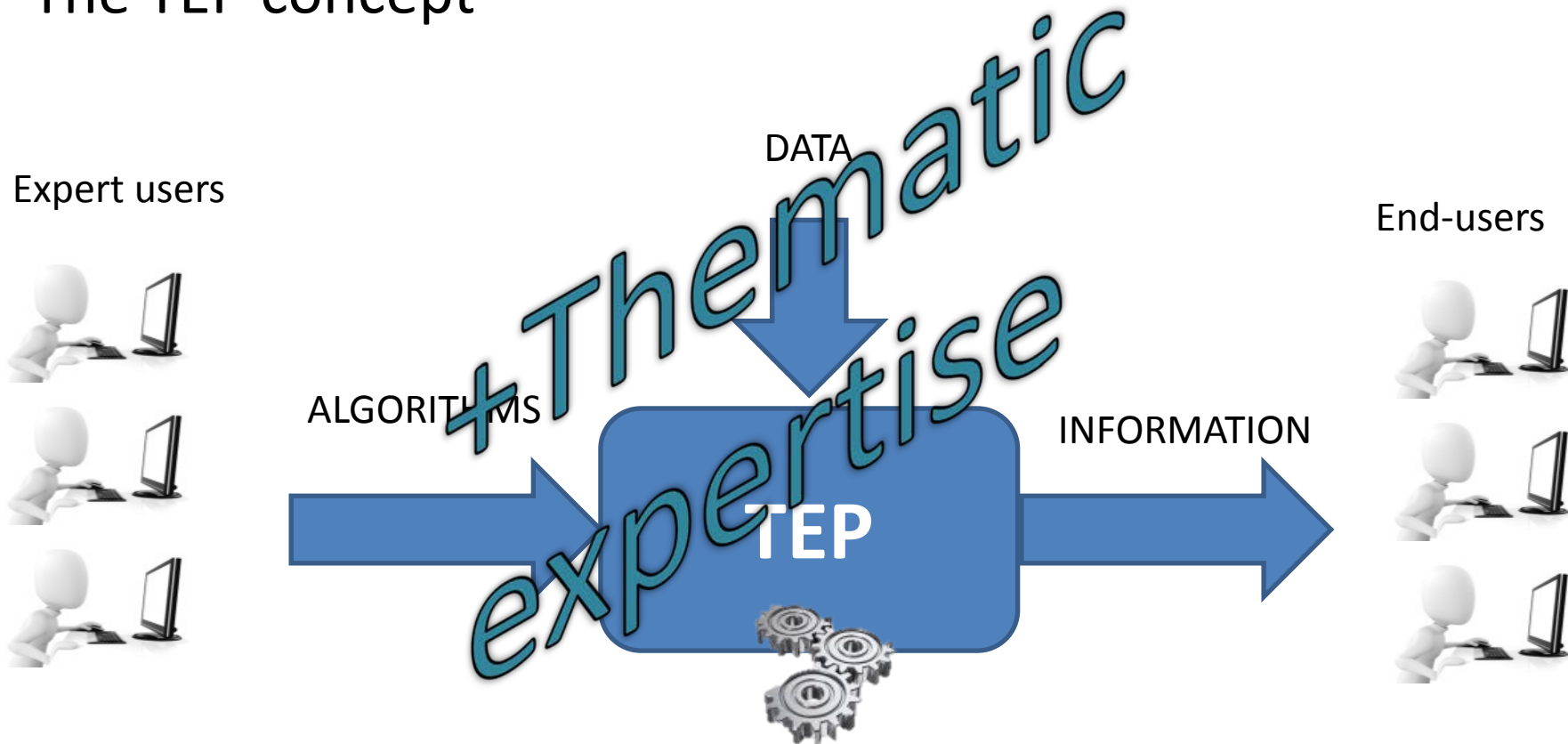
Exploring and Monitoring European Coastal Areas



- The TEP concept

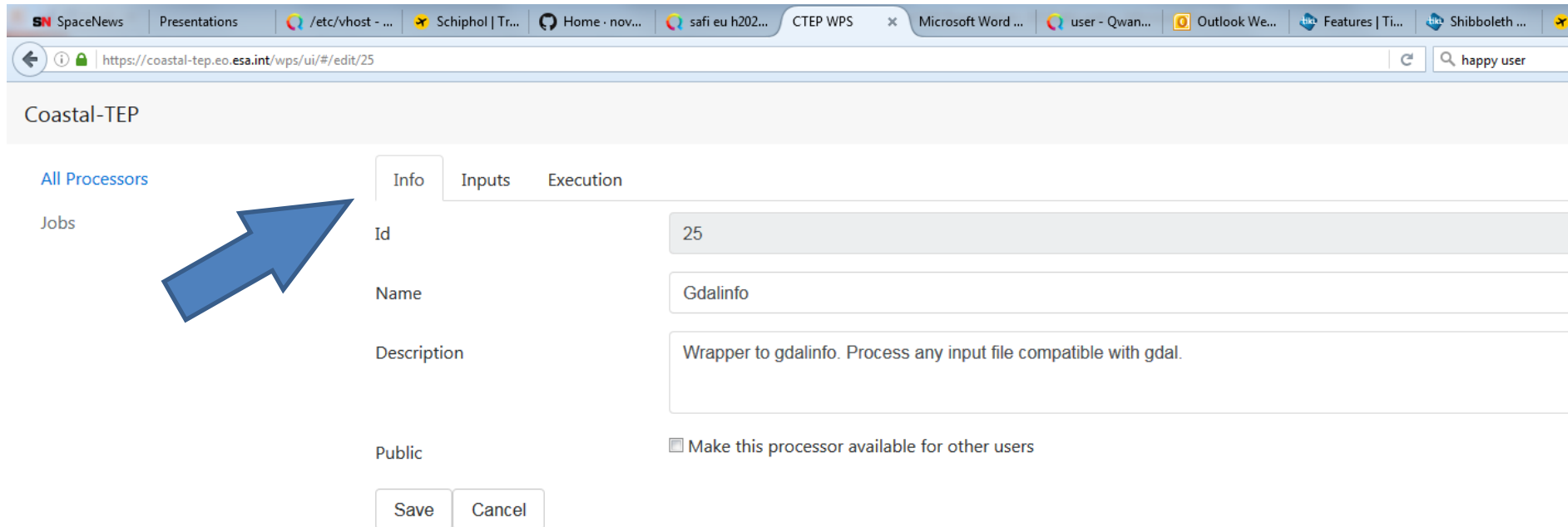


- The TEP concept



- How ?
 - “Mouse-click” based processor integration:
 - Easy to use: not all experts are geeks
 - More expert-users means more (and better) software integrated
 - More software available means more information for end-users

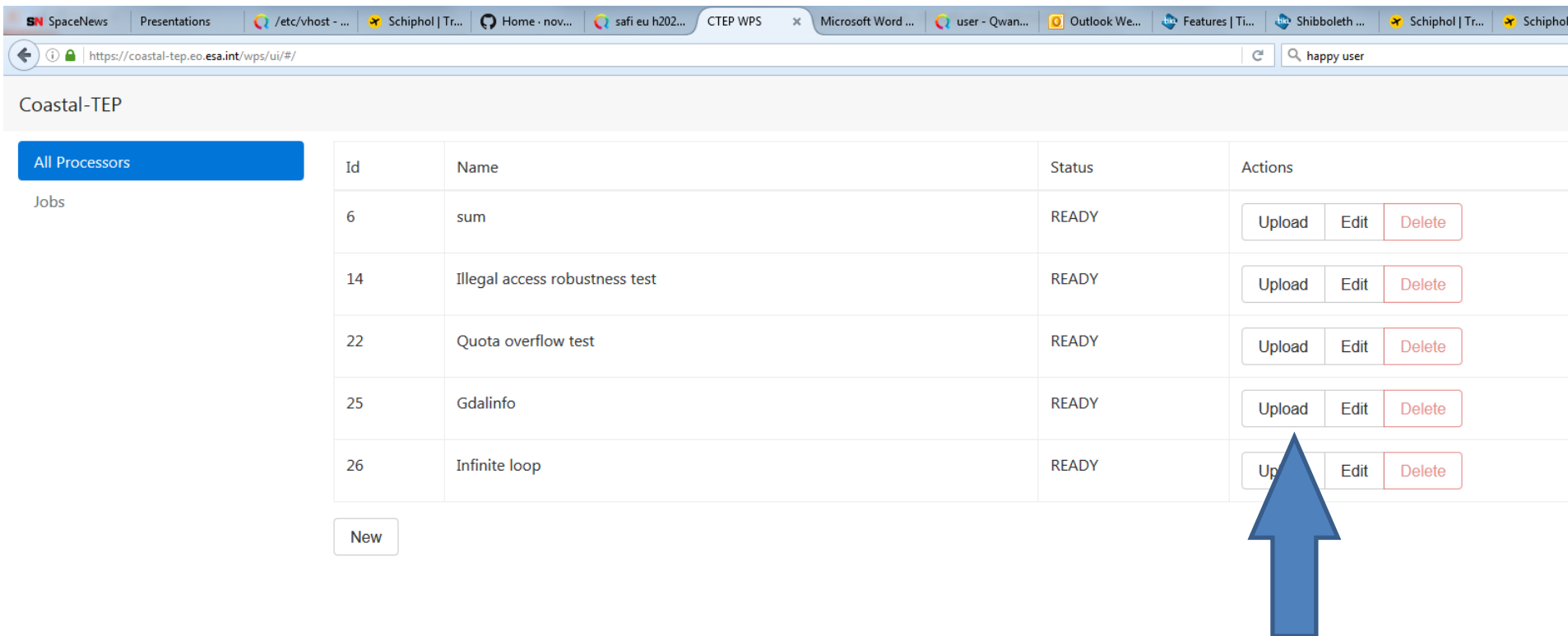
- How ?



The screenshot shows a web browser window with the URL <https://coastal-tep.eo.esa.int/wps/ui/#/edit/25>. The page title is "Coastal-TEP". On the left, there is a sidebar with "All Processors" and "Jobs". A blue arrow points to "All Processors". The main content area has three tabs: "Info", "Inputs", and "Execution". The "Info" tab is active, showing details for processor ID 25. The details include: Id: 25, Name: Gdalinfo, Description: Wrapper to gdalinfo. Process any input file compatible with gdal., and a checkbox for "Public" which is checked. At the bottom of the "Info" tab are "Save" and "Cancel" buttons.

Id	Name	Description	Public
25	Gdalinfo	Wrapper to gdalinfo. Process any input file compatible with gdal.	<input checked="" type="checkbox"/>

- How ?

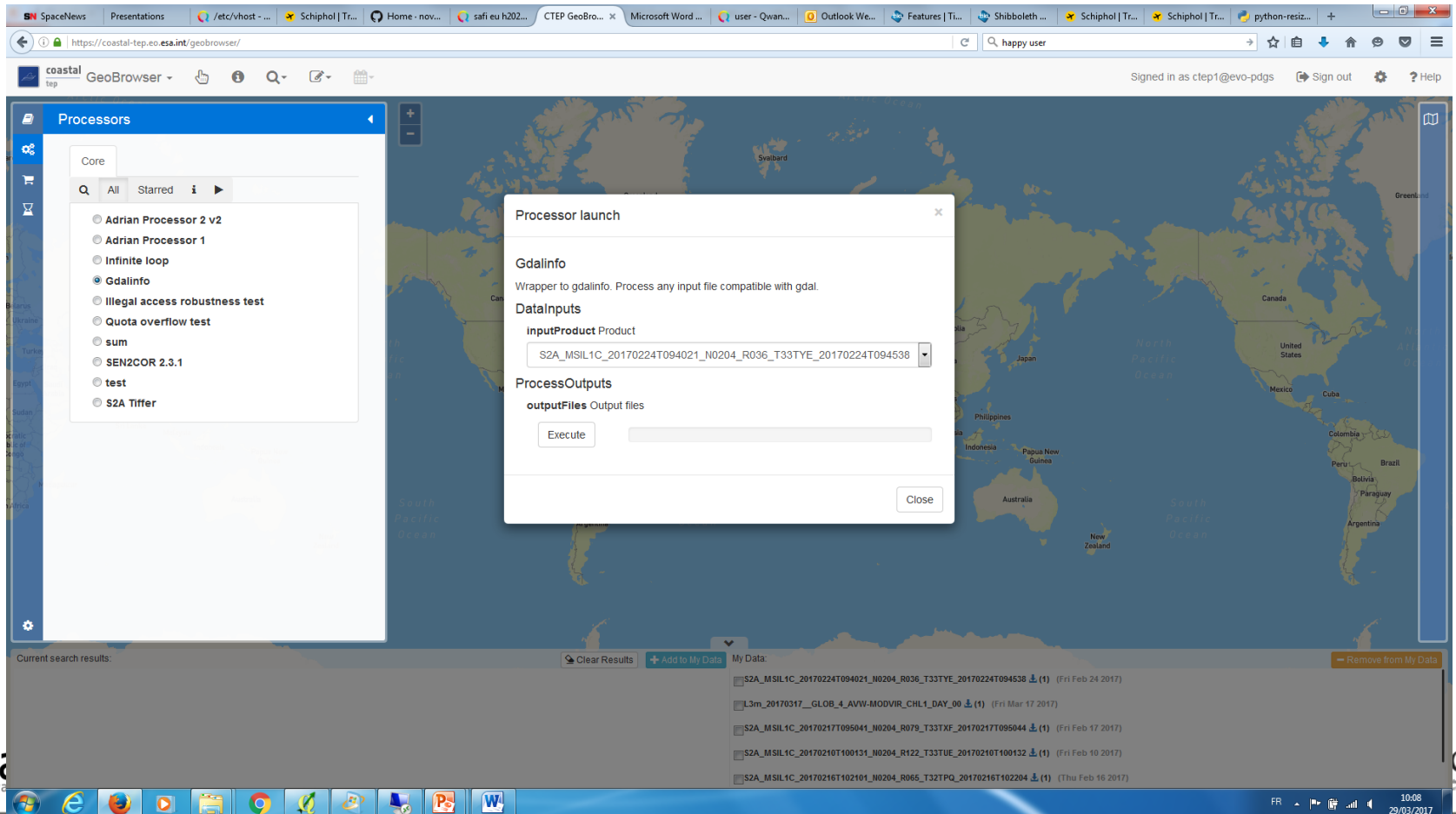


The screenshot shows a web browser window with the URL <https://coastal-tep.eo.esa.int/wps/ui/#/>. The page title is "Coastal-TEP". On the left, there is a sidebar with a blue button labeled "All Processors" and a link labeled "Jobs". The main content area displays a table with the following data:

Id	Name	Status	Actions
6	sum	READY	Upload Edit Delete
14	Illegal access robustness test	READY	Upload Edit Delete
22	Quota overflow test	READY	Upload Edit Delete
25	Gdalinfo	READY	Upload Edit Delete
26	Infinite loop	READY	Up Edit Delete

Below the table, there is a "New" button. A large blue arrow points to the "Delete" button in the "Infinite loop" row.

- How ?



The screenshot displays the GeoBrowser web application interface. On the left, a sidebar titled "Processors" lists various processing options under the "Core" tab, including "Adrian Processor 2 v2", "Adrian Processor 1", "Infinite loop", "Gdalinfo" (selected), "Illegal access robustness test", "Quota overflow test", "sum", "SEN2COR 2.3.1", "test", and "S2A Tiffer". The main area shows a world map. A "Processor launch" dialog box is open, displaying details for the "Gdalinfo" processor. The dialog includes a description: "Wrapper to gdalinfo. Process any input file compatible with gdal." and sections for "DataInputs" and "ProcessOutputs". The "DataInputs" section shows "InputProduct" set to "Product" and a dropdown menu with the value "S2A_MSIL1C_20170224T094021_N0204_R036_T33TYE_20170224T094538". The "ProcessOutputs" section shows "outputFiles" set to "Output files". An "Execute" button is visible, along with a "Close" button. At the bottom, a "My Data" section lists several data files with their names, download icons, and dates.

The Coastal Thematic Exploitation Platform: thematic aspects



coastal
tep

Catalysts
software is our passion

TERRASIGNA™



planetek
italia

ThalesAlenia
Space

- Users need
 - Monitoring of coastal habitat
 - Land and underwater in shallow areas
 - Classification and change detection
 - Monitoring of coastal geology
 - Coast line
 - Bathymetry
 - Optical inversion, wavelength processing...
 - Monitoring of coastal weather conditions
 - Storm surges
 - wind and waves
 - Radar Altimetry and radar imagery



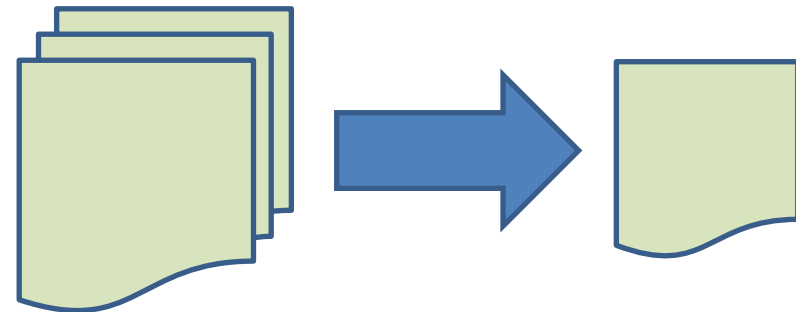
- Users need
 - Monitoring of coastal water quality
 - Water constituents, chlorophyll concentration and turbidity @ high resolution
 - Bio-geo-physical optical inversion



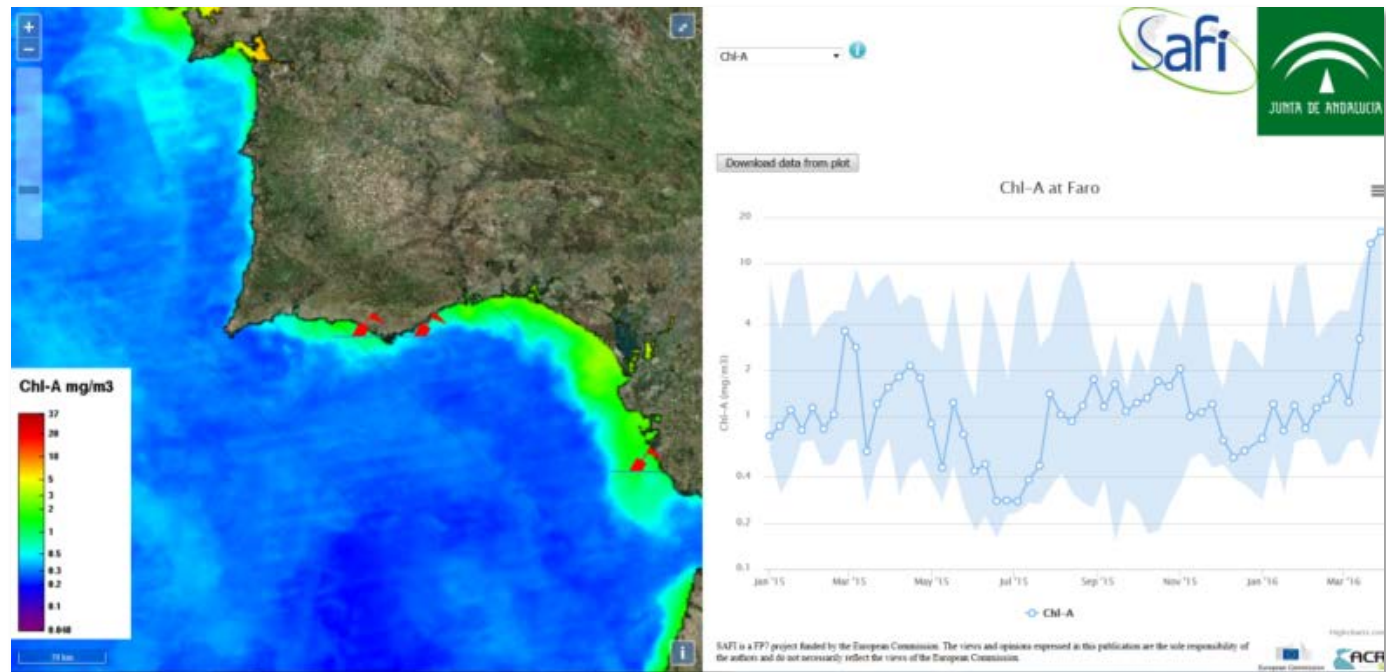
- Data archives: EO data
 - Copernicus archive accessed through partnership with CNES (PEPS)
 - GlobColour: 25 years of Ocean Colour Level 3 data
 - Sea Surface Temperature (GHRSSST)
 - Coastal Altimetry products (CTOH)
- Data archives: In-situ
 - MERMAID bio-optical measurement database
 - Bio-Argo profilers
 - Tidal gauge measurements
- Other data
 - Semantic features database



- Processing and tools: generic data mining/extraction tools
 - Extraction of time series over an area or pointwise extractions
 - Statistical processing
 - Averaging, trend detection
 - Relying on parallel processing
 - Classification and feature detection
 - Change detection
 - Data fusion in-situ/satellite

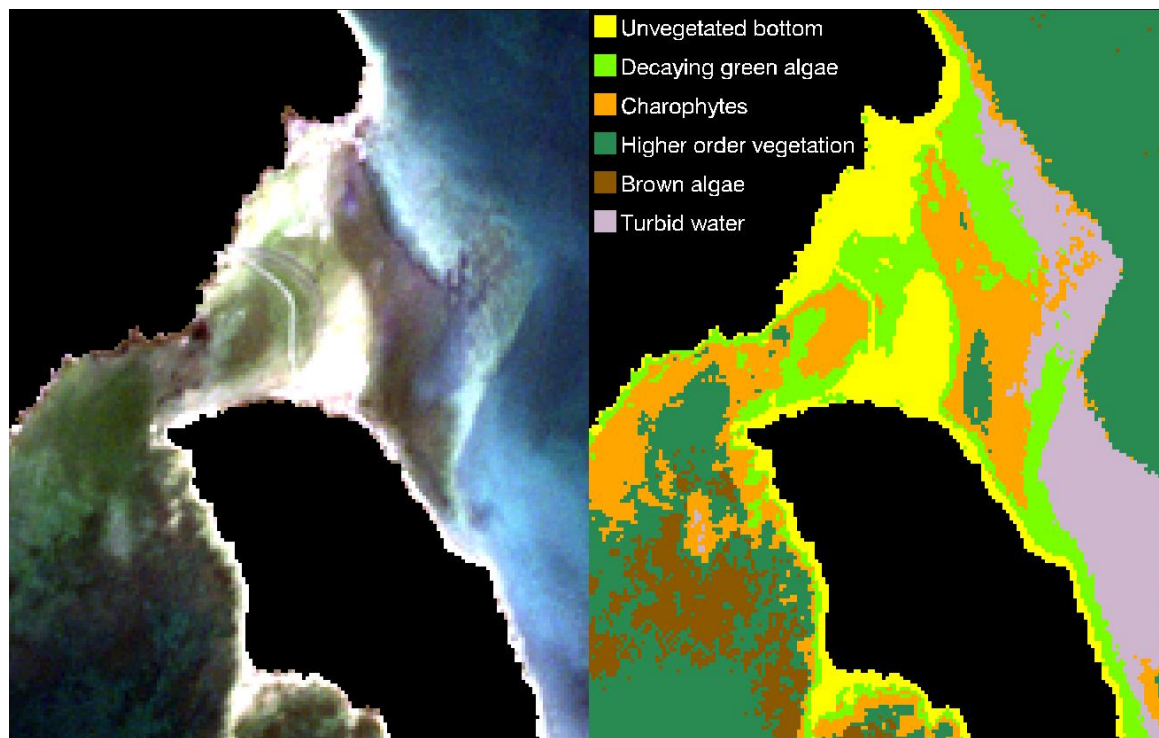


- SAFI project: use of information extraction tools to generate a service to support fisheries and aquaculture

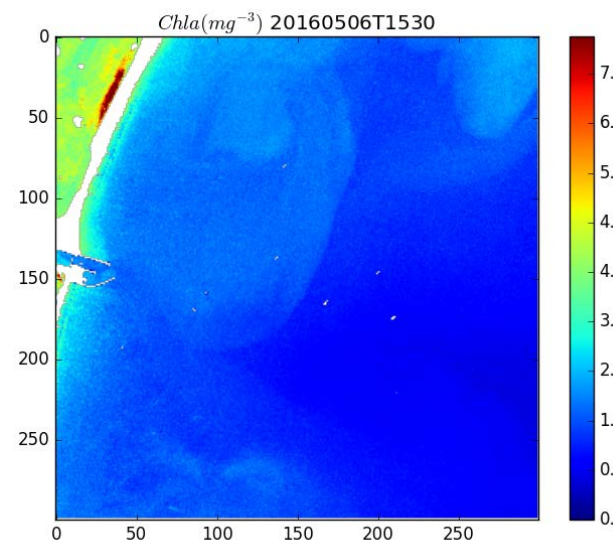
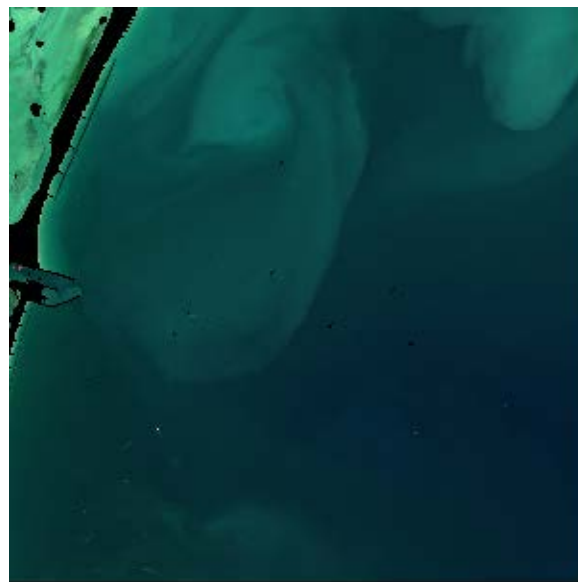
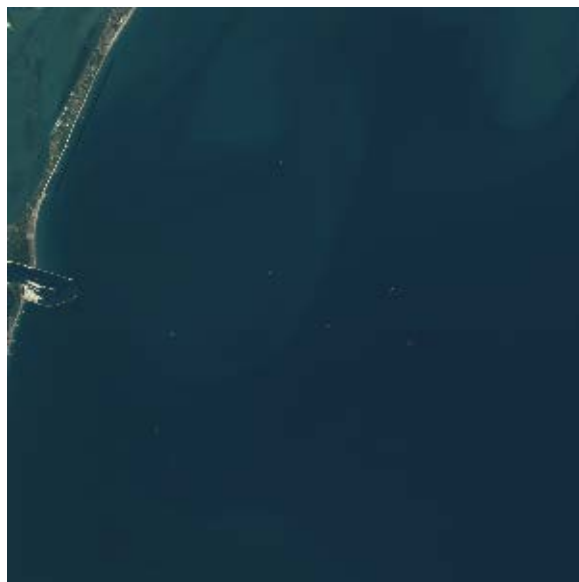


The Coastal TEP : thematic scope

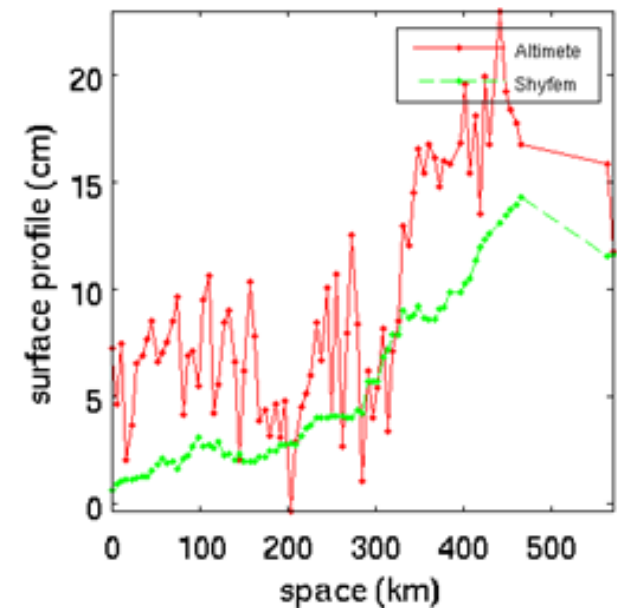
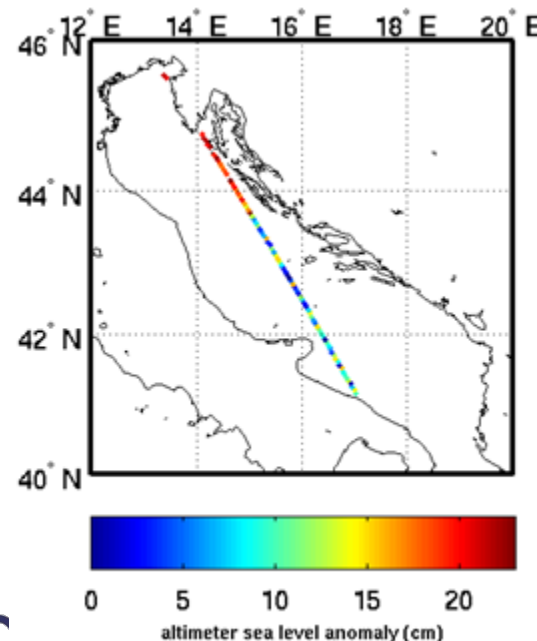
- Bathymetry and benthic classification with Sentinel 2 data
 - Collaboration in preparation with T. Kutser (U. Tartu)



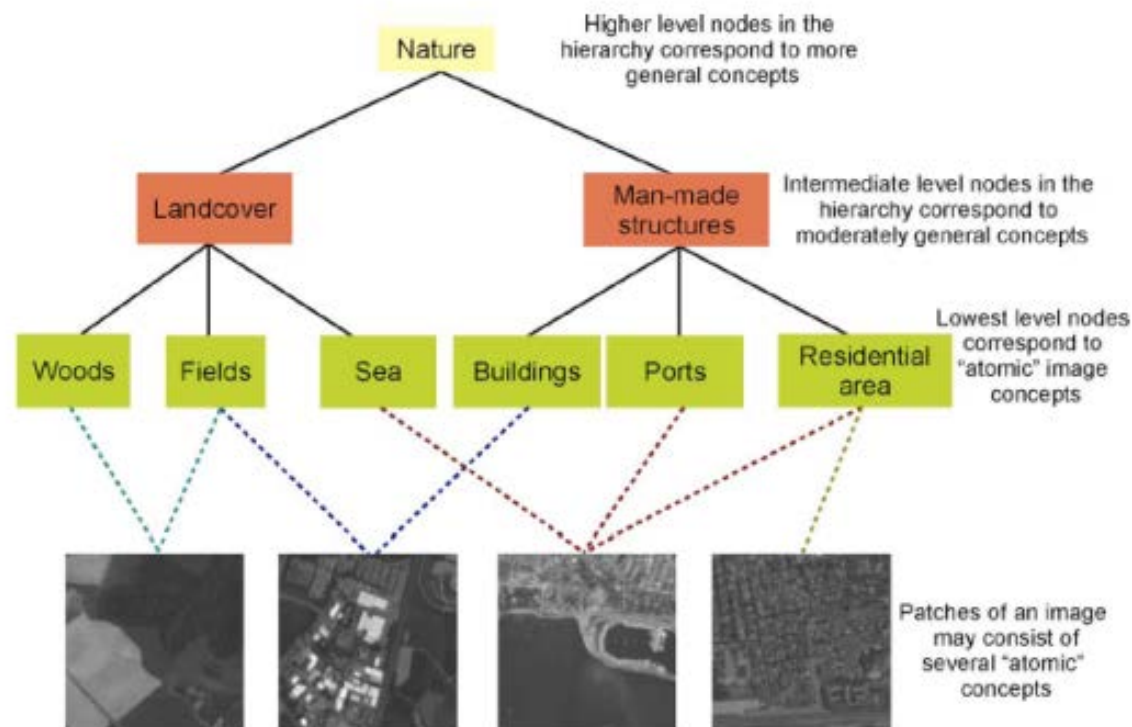
- Processing and tools: thematic processing
 - Atmospheric correction over water and water constituent retrieval with Sentinel 2 data



- Data fusion tools for satellite altimetry and tidal gauge measurements, with application to storm surge monitoring
 - Collaboration with CNR Italy



- Integration of a semantic feature database
 - Collaboration with DLR, Germany



- The Coastal TEP main development phase is finishing
- Pilot projects are starting, scientific and technical challenges of coastal areas need to be addressed
- Open questions and challenges:
 - Have we managed to make processor integration easy ?
 - Is the platform robust and secure ?
 - How difficult is it to handle parallel processing (map/reduce type) ?
- The future:
 - TEPs have been designed as “plug-and-play” systems which can be installed on copernicus-ready infrastructure
 - This will ensure that the concept can adapt to the rapidly moving environment of the Copernicus data infrastructure