



# *Exploitation of Earth Observation for water management in the Mediterranean*



ESA - EMWIS Workshop: "Exploitation of Earth Observation for water management in the Mediterranean", 03-05 December 2012; Frascati- Rome (Italy)

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## **CONCLUSIONS**

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[http://www.emwis.net/documents/meetings/fo1791509/ESA-EMWIS\\_ROMA2012/](http://www.emwis.net/documents/meetings/fo1791509/ESA-EMWIS_ROMA2012/)

These conclusions summarize the discussions and results of the workshop and training course organized by ESA & EMWIS on "Exploitation of Earth Observation for water management in the Mediterranean". It took place on 3-5 December 2012, at ESRIN- ESA in Frascati-Rome (Italy).

The meeting was attended by 20 participants representing 5 Mediterranean countries (water authorities and remote sensing institutes): Morocco, Tunisia, Egypt, Jordan & Lebanon, apart from the organizers: ESA & EMWIS representatives, and the trainers from the Delft University of Technology and Jenaoptronik. All the training material, presentations, publications and tools were provided to the trainees on a USB flash-disk.

Based on the [concept note](#) on a capacity building program strengthening EO for water management in the Mediterranean defined during a first workshop organized in September 2010, ESA and EMWIS wanted to move a step forward by providing a technical introductory training course focusing on some priorities identified in 2010 and reviewing potential joint activities taking into account recent developments in the region.

The 2-days short course conducted by the TIGER Capacity Building Facility (TCBF) was based on lectures, demonstrations, case studies and some practical exercises. The main topics addressed were: TIGER initiative (EO for water management in Africa), Optical remote sensing, access to EO data from ESA missions, delineation of water bodies, water levels, crop monitoring, rainfall, evapotranspiration, soil moisture, lake levels, land use, water productivity, irrigation management, water accounting and water balance monitoring. The GloWetland project and in particular its Med component was presented.

The 3<sup>rd</sup> day was dedicated to a workshop to prepare the next steps, taking into account the latest developments. The welcome speech from EMWIS Steering Committee President, Walter MAZZITTI (participation excused), read to the participants, reminded the importance of reliable data for planning and policy making as stated in the Ministerial conference on Water of Union for the Mediterranean (UfM) in 2008. The concept note prepared in 2010 was presented together with the latest regional activities carried out on water information systems in the Mediterranean:

- UfM Regional project for Creating Shared National Water Data Management Systems towards a Mediterranean Water Knowledge Hub promoted by EMWIS, the

Lebanese Ministry of Energy and Water, the Arab League, involving pilot implementation in Morocco, Tunisia, Lebanon and Jordan.

- Development of water accounts at sub-river basin level with a monthly timeframe at EU level (e.g. [pilot exercise for Jucar River basin in Spain](#) and EU publication)
- Extensions of Shared Environmental Information System –SEIS– to South Med countries promoted by the European

Morocco, Lebanon, Tunisia and Egypt presented their current development in terms of application of EO for water management, in particular in the framework of GEF/WB/NASA project called CAPWATER “Regional Coordination on Improved Water Resources Management and Capacity Building”.

These presentations were followed by a debate from which emerged the following conclusions:

- The participants agreed on the usefulness and importance of EO information for water resource management at national scale as well as for trans-boundary basins. In this context the original concept note from 2010 was considered still fully applicable.
- Revision of country priority domains identified in 2010: the table prepared in 2010 was updated during the meeting and is provided in annex. Country representatives are expected to provide their detailed requirements for each priority item in terms of data, spatial and temporal resolution **for 16<sup>th</sup> of December**.
- The concept note will be revised to reflect the current situation in the countries and the region. It will include the countries priority requirements update from 2012 as well as planned developments under CAPWATER project and the UfM project. The updated concept note will be provided by the end of December 2012
- The UfM Regional project under preparation is expected to get the UfM label in March 2013 for a potential starting date in early 2014. Future collaboration between EMWIS and ESA was discussed to integrate EO for water resources management within this project. It was agreed that the proposal will include the following EO aspects:
  - Yearly one-week training sessions on EO for water managements organized at regional level, taking advantage of the TIGER training kit and experience existing within the TCBF.
  - Preparation of guidelines and tools based on the results from Tiger initiative (such as the Water Observation Information System (WOIS) an open-source satellite data processing tool kit, Sentinel user handbooks) for potential integration as operation services in National Water Information Systems – NWIS
  - The implementation of EO operational services in NWIS will be decided on case by case by the pilot countries
- The CAPWATER project is involved in most of the priority topics identified by the countries. It will provide tools and capacity building for the countries. Remote sensing institutes from the pilot countries highlighted the opportunity to process satellite data from ESA missions through the platform that will be implemented by CAPWATER. This project is expected to be implemented up to 2015 (4 years). 2012 was an inception phase, the kick-off meetings in all the pilot countries have started in the last quarter and are not yet completed. It will be up to the countries to decide to inform the GEF/WB/NASA on ongoing activities with EMWIS/ESA for potential follow up, keeping in mind that EMWIS/ESA are targeting watershed to river basin or aquifer management which requires EO data in high spatial resolution such as provided by Sentinel-1 and -2 missions in the future (data necessary to operational integrated water resources management).

- ESA has announced its on-going and planned activities that could support some or the country priorities and that could be of interest for other EMWIS member countries:
  - ESA is developing five new missions called Sentinels specifically for the operational needs of the GMES programme. For water management most interesting are Sentinel-1 and -2 planned to be launched end of 2013 and 2014 respectively. The Sentinel-1 as a SAR mission will be of high relevance to provide flood mapping in high resolution. The Sentinel-2 mission is a multispectral high-resolution imaging mission for land monitoring providing information for agriculture, forestry, water cover, inland waterways and coastal areas. See more information of the Sentinel mission on: [http://www.esa.int/Our\\_Activities/Observing\\_the\\_Earth/GMES/Overview4](http://www.esa.int/Our_Activities/Observing_the_Earth/GMES/Overview4)
  - ESA within the TCBF is offering **to train trainers** at the four Regional Offices of TIGER (for the Mediterranean, OSS will host this training in 2013) on the use and the preparation for the exploitation of Sentinels data
  - Sentinel-2 **Agriculture project** (start 1st half 2013): The project will develop, provide and demonstrate tools to users for crop mapping at national & basin scale based on the high resolution (10-20 m). The 5 pilot countries representatives are invited to join the project. A user requirement document was, provided to the participants, which gives them the opportunity to give their input to the preparation of the project and participate as user in the project. More Information on the project: <http://due.esrin.esa.int/meetings/meetings281.php> (please see the link for all presentations at the bottom of the web page)
  - TIGER-NET project (<http://www.tiger-net.org>): Currently this project is designing and adapting an open source Water Observation Information System together with 5 major Africa water authorities: Details on the current progress on the WOIS and its EO products were provided. In the second phase of the project, which will start in the 2nd half of 2013. One more user from the Mediterranean region could be included.
  - GlobWetland3: For the extension of the GlobWetland project (<http://www.globwetland.org>) ESA will organize a user consultation workshop in summer 2013, which could be of interest to representatives in the relevant ministry of Mediterranean country. Invitations will be sent out in the beginning of 2013 – interested persons are invited to contact Marc Paganini ([marc.paganini@esa.int](mailto:marc.paganini@esa.int)).
  - Universal access to disaster charter: Civil protection of any country can sign the charter and ask for near real-time satellite data in case of disaster such as a flood, earthquake, etc. (<http://www.disasterscharter.org/web/charter/activate>)
- Finally, ESA, EMWIS and 5 pilot countries will continue exploring fund raising and regional programmes/initiatives opportunities that may reinforce this activity.