



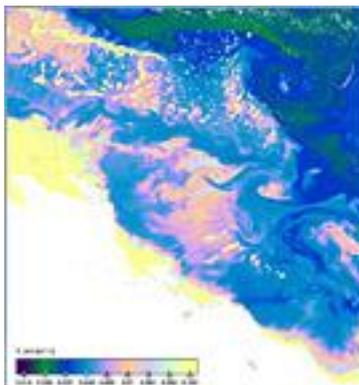
ESA has launched the **CoastColour** project to fully exploit the potential of the MERIS instrument for remote sensing of the coastal zone. CoastColour is developing, demonstrating, validating and intercomparing different Case 2 algorithms over a global range of coastal water types, identifying best practices, and promoting discussion of the results in an open, public form.



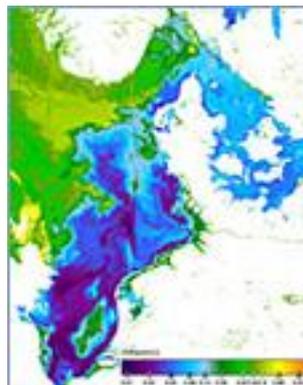
Background Image: Blue Marble © N

**Content**

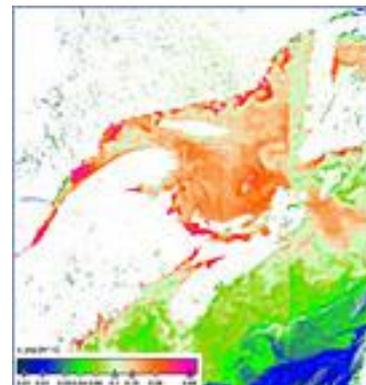
- 1<sup>st</sup> CoastColour User Consultation Meeting
- Users and Sites
- Consolidated CoastColour Processing chain
- The CoastColour Round Robin
- Upcoming Events
- CoastColour Core Team



Site12: Great Barrier Reef  
Minimum downwelling irradiance  
attenuation coefficient



Site1: NorthSea  
Quality measure of the  
inversion procedure



Site5: Acadia  
Pigment absorption coefficient



### 1st CoastColour User Consultation Meeting

Following the invitation of the European Space Agency, the First User Consultation Meeting was held in ESRIN, Frascati, Italy, from 16. to 17. November 2010. 72 participants including 55 CoastColour users from 24 countries attended the workshop. Since the successful Preparatory User Consultation meeting in Cork, 11 month of activities gave a profound basis for fruitful discussions about the progress of the project, ocean colour algorithms and products in the coastal zone.



The project is driven by inputs received from users and user consultation is viewed as a very important element of the execution of the project.

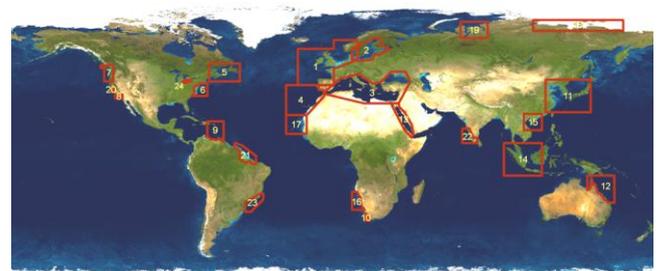
This meeting provided a platform for users and potential new users of CoastColour products to learn about what is now available and what is planned within CoastColour, to make the CoastColour team aware of their developing needs and to contribute to the evolution of the CoastColour Project. For this the CoastColour team presented the main achievements during 7 targeted presentations of the project on the one side. On the other side 16 users presented their current working practice, their relationship with CoastColour and expectations from this project.

The intensive discussions underlined a high demand for good water leaving reflectances. Algorithm development aiming to cope for global requirements was seen as a very challenging task because of the high complexity of the algorithms. The users were pleased to find in the CoastColour Project the first forum

for the coastal remote sensing community and the possibility to come together. Both users and CoastColour team appreciated the continuation of a forum facilitating a close international communication and collaboration, which goes beyond the period of CoastColour. The great success of this meeting gave high motivation to the CoastColour team for upcoming activities of the second phase and to look forward to the next User Consultation Meeting in Lisbon (see upcoming events).

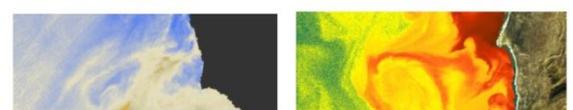
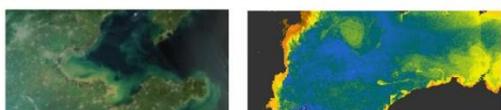
### New Users and Sites

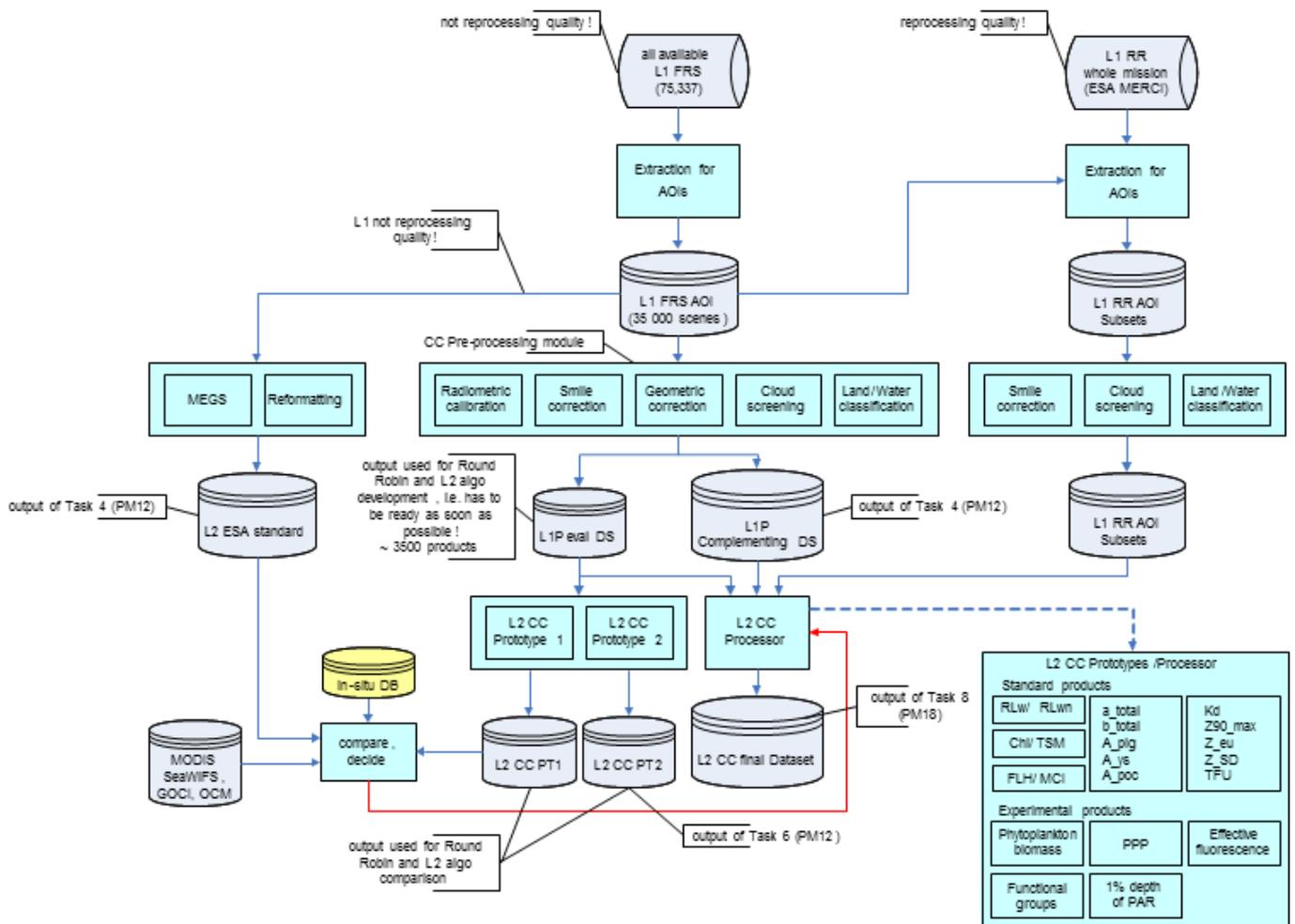
After the first call for participation as champion user in CoastColour, 24 globally distributed sites were selected. A total of 34 user organizations wanted to provide local knowledge of these sites, in-situ data and to participate in the User Consultation Meetings. Since then more and more users were won to become champion user and new sites have been added. To date 27 sites and 46 champion users were incorporated in the project. The new sites are Tasmania, Gulf of Mexico and Rio la Plata.



### Consolidated CoastColour processing chain

The CoastColour processing chain is a complex network as visualised in the figure below. In the centre lies the main processing line. It starts with the L1b FRS, which are delivered by ESA. The number of products is 75,337 in total, covering the period 2005 to 2009. The first step is to register and quality control these data and to extract the relevant data over the AOIs, which is done with a modified CoastColour version of the MERCI software. These are processed with the L1P processor (also called CoastColour pre-processing), which





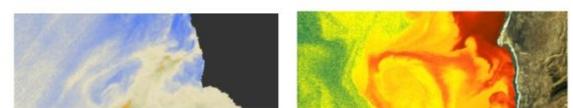
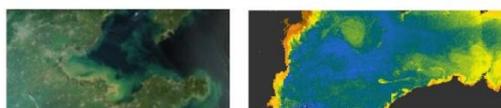
includes radiometric calibration, smile correction, geometric correction, equalisation (de-stripping process), cloud screening and land/water classification. Each of these components undergoes an improvement in comparison to previously existing algorithms.

The L1P processing is performed in two chunks. The first set is a smaller set (<10.000 products), ready early in the project and used for development and testing of the L2 prototype processors, but also for the Multi-sensor Round Robin exercise. The second, larger set, are all remaining products.

In parallel with the L1P and prototype L2 processing, the FRS products of the AOIs will be processed with ESA Optical Data Processor (ODESA) to standard L2 products and are reformatted into the CoastColour format and grid (netCDF-CF). We are waiting for the most recent version of ODESA to provide 3<sup>rd</sup> reprocessing quality for this dataset. In a

validation and intercomparison activity the subset processed with the CoastColour L2 prototypes are compared with the ODESA processed products, corresponding products of MODIS, SeaWiFS, GOCI and OCM (if available) and with in-situ data. We will interact with champion users and conclude on this basis on the final design and implementation of the L2 processor.

The right branch of the figure shows the MERIS RR data stream. Additional to the FRS dataset, RR data over every AOI are extracted from the global RR data archive and processed. The L1b RR data are processed with a similar processing chain than the L1P processing. Geocorrection with AMORGOS is not necessary due to the larger pixel size, which is far above the geometric accuracy; and it would not be possible technically. A radiometric recalibration is not necessary because the RR data are at third reprocessing level already. The L1P RR





products are merged into the dataflow of FRS data during L2 processing, and the final CoastColour L2 dataset is processed.

### The CoastColour Round Robin (CCRR)

To help users to find or assess the best algorithm or product for their region, a CoastColour Round Robin (CCRR) exercise is carried out. The objective is to develop, validate and demonstrate best practice regional optimisations of MERIS Case 2 algorithms. The exercise shall help to understand the performance differences of algorithms and in the long term to work towards a possible consensus algorithm for Case 2 waters. It is not meant to select the best algorithm for use in the CC processor.

The CCRR depends on the attendance of external participants. Champion users sign to provide in-situ data for validation and calibration of RS data and to participate in the User Consultation Meetings. If available, they provide and apply their regional algorithm to the RR data package, allocated by CC. Advantages for users include being co-author of the RR Final Report and of a submission to a peer reviewed journal.

A Round Robin (RR) Protocol was published on the web site at the beginning of October 2010 ([http://www.coastcolour.org/round\\_robin.html](http://www.coastcolour.org/round_robin.html)). It describes the rules of the exercise, the data package, the layout of a harmonised presentation of results and how to register as algorithm provider.

The RR data package contains 4 datasets supplied as input: a) Matchups b) in-situ reflectances c) simulated reflectances and d) Images. C) and d) are already available from [http://www.coastcolour.org/round\\_robin.html](http://www.coastcolour.org/round_robin.html)

To participate, users should read about the activity in CCRR Protocol, to register and to sign up for the in-situ data policy. Afterwards they can download the dataset and the documentation from CC ftp server ([ftp.coastcolour.org](ftp://ftp.coastcolour.org)) or CC website.

For more information please contact the RR manager: [K.Ruddick@mumm.ac.br](mailto:K.Ruddick@mumm.ac.br) or (general): [carsten.brockmann@brockmann-consult.de](mailto:carsten.brockmann@brockmann-consult.de)

### Upcoming events

It is planned to present the CoastColour project at the LOICZ Open Science Conference, 12.-15.09.2011 in Yantai, China ([http://www.loicz.org/calender/OSC\\_2011/index.html.en](http://www.loicz.org/calender/OSC_2011/index.html.en)).

The CoastColour team is pleased to invite all users, and those who are interested in the project, to participate in the next User Consultation Meeting in Lisbon, 19.-21. October 2011. For further details, please contact [office@coastcolour.org](mailto:office@coastcolour.org).

### CoastColour Core Team

An international team has been constituted under the leadership of Dr. Carsten Brockmann from Brockmann Consult (Germany): Dr. Shubha Sathyendranath, Prof. Trevor Platt FRS and Steve Groom from the Plymouth Marine Laboratory (PML, UK); Dr. Roland Doerffer and his colleagues from the HZG (Helmholtz-Zentrum Geesthacht, Centre for Materials and Coastal Research, Germany); Dr. Kevin Ruddick, Management Unit of the North Sea Mathematical Models (MUMM, Belgium); Prof. Richard Santer from the University of the Littoral Opal Coast (LISA, France); Prof. Vanda Brotas University Lisbon (CO, Portugal).

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The project is affiliated to LOICZ.



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