Minutes of the progress meeting IOCCG WG on Atmospheric correction over optically-complex waters

This progress meeting took place on Sunday, 26th of October, 2014 from 9:30am to 1:00pm. Members that participated to this meeting were: Julien Brajard, Liesbeth De Keukelaere (on behalf of Sindy Sterckx), Kevin Ruddick, Palanisamy Shanmugam, Knut Stamnes, Menghua Wang. Sean Bailey, Xianqiang He and Thomas Schroeder were excused.

Frédéric Mélin from JRC was invited to participate to the meeting on behalf of the OC-CCI team. Common interests between both groups exist and collaboration should be developed. Guiseppe Zibordi, PI of the AERONET-OC network, was also invited to participate.

The topic of the meeting was focused on the in-situ datasets owned by the members of the WG After a short summary of the term of references and of the kick-off meeting by C. Jamet, the meeting started with presentations from K. Ruddick and M. Wang as they could not attend the kick-off meeting.

M. Wang presented the activities at NOAA with the use of the SWIR bands for atmospheric correction and the development of a new method, BMW. Analysis of the VIIRS products was also presented. At last, dedicated NOAA sea campaigns will start in November for supporting the cal/val activities related to VIIRS.

K. Ruddick presented the activities at RBINS. Its in-situ dataset was presented, constituted of 105 QC/QA data in the English Channel and North Sea. Unfortunately, no matchups but this dataset could be mixed with simulated data of the atmospheric path for creating a semi-simulated Rayleigh-corrected reflectance that will be used for the sensitivities study. Moreover, two new AERONET-OC sites were presented located in the North Sea. At last, K. Ruddick proposed to include budget uncertainties in the analysis of the results of this WG. At the KO, it was decided to discard budget uncertainties. Discussion is in progress to amend or not this activity.

F. Mélin, on behalf of the OC-CCI team, presented the results and metrics obtained during the round-robin of atmospheric correction over case-1 waters – phase 1. Phase 2 of the round-robin just started. The OC-CCI developed metrics for assessing and comparing the results of the different atmospheric correction taken into account in their round-robin (MERIS standard processing, NASA, NN, Polymer). The dataset used comprised the MERMAID dataset. Qualitative (applicability to several mission, extension to case-2 waters, ATBD, …) and quantitative criteria (sensitivity to angles, matchups analysis) were developed. Match-up selection protocol was developed to select the best atmospheric correction based on different validation metrics (RMCS, R^2, bias, linear regression, % valid retrievals, …). Discussion about these metrics and protocols took place to know if they were applicable to

this WG. While the statistical metrics could be the same, the goal of your WG is not to select one specific atmospheric correction algorithm but to provide guidance for end-users. So the match-up selection protocol (scoring system) will not be used. It has been agreed that collaboration with the OC-CCI should start for mutual benefit.

P. Shanmugam presented the dataset owned by his group. 3000 in-situ datasets are available in the Indian and Arabic Seas. Moreover, his new atmospheric correction will be available for your round-robin and is implemented in the SeaDAS software.

.L. De Keukelaere presented, on behalf of Sindy Sterckx, the in-situ datasets owned by VITO. The dataset has been acquired during the SeaSWIR project and is comprised of 137 samples, most of them were obtained from pontoon. This dataset could be useful for simulated the Rayleigh-corrected reflectances. As the data were acquired during the SeaSWIR project, agreement from all partners is necessary. Action is taken from C. Jamet to contact the partners. Next to the SeaSWIR study areas, in-situ data from the Scheldt (2010) and Zeebrugge (2013-2014) are readily available.

J. Brajard presented the in-situ dataset owned by LOCEAN. This datasets is comprised from 4 sea campaigns in the coast of Senegal, western Africa. 30 measurements per year are available.

C. Jamet presented the in-situ dataset owned by his group at LOG. 692 Rrs measurements are available in three contrasted coastal areas: English Channel/North Sea, French Guiana and Vietnam. The full L2 MODIS-A archive is also available over the English Channel/North Sea and French Guiana.

The last part of the meeting concerned the need to select a given radiative transfer model (RTM) for the simulation of the Rayleigh-corrected (or top-of-atmosphere) reflectance. In the IOCCG report #10, a simulated dataset was developed using a Monte-Carlo code with two aerosol models (from Shettle and Fenn). This dataset could be directly used and is available for any ocean color sensors. However, four radiative transfer models are available in our WG and it is necessary to assess the differences between the different RTM so the dataset that will be simulated does not introduce any bias for the evaluation of the atmospheric correction algorithms. M. Wang thinks that the working group should focus on algorithms evaluation using real satellite and in-situ data, instead of repeating the work from report #10. He also thinks that there is no need to develop a new simulated dataset as the one developed for report #10 should be good enough. Selection of a RTM was mentioned during the kick-off meeting. Discussion around the use or not took place. K. Stamnes proposed to lead this activity by producing a set of few cases as benchmark to compare the different RTM of this WG. This activity should end by early 2015.

The meeting was adjourned by deciding to have all in-situ and simulated datasets by Spring 2015 and to have a progress meeting at the next IOCS meeting in June, 2015.

The schedule of the meeting was:

Sunday, 26, October, 2014:

9:30-9:45: Welcome (C. Jamet)

9:45-10:05: Activities at NOAA (M. Wang)

10:05-10:25: Activities at MUMM (K. Ruddick)

10:25-10:45: OC-CCI round-robin (F. Mélin)

10:45-10:55: In-situ dataset at ITT (P. Shanmugam)

10:55-11:05: In-situ dataset at VITO (L. De Keukelaere)

11:05-11:15: In-situ dataset at LOCEAN (J. Brajard)

11:15-11:30: coffee break

11:30-11:40: In-situ dataset at SIO/SOA (X. He by C. Jamet)

11:40-11:50: In-situ dataset at LOG (C. Jamet)

11:50-12:35 Discussion about the simulated datasets (M. Wang, X. He, K. Stamnes)

12:35-13:00: Plan for 2015

13:00: Adjourn