

## Summary of the April 30th ISSI team meeting

The meeting took place as a bluejeans virtual meeting.

### 1. Introduction

Apologies for absence were noted from Simon Yueh and Christophe Accadia. Furthermore Simon noted that although he will remain in contact, he will not be able to participate fully in the ISSI team and steps down as a full member of the team.

### 2. Review of actions

**A1\_1:** All scientific papers to be shared amongst the group, as some are more difficult to obtain. These can be linked to from the ISSI web page.

*Some papers shared. Action on-going.*

**A1\_2:** Ben Johnson to put up a GitHub from NOAA for the code developments. Space for some data (no more than 1THz).

*Done.*

**A1\_3:** Jacqueline Boutin has plans to change the dielectric model for SMOS processing, and to do tests on the SST. This model will be made available and then evaluated.

*Done. Jacqueline changed the dielectric model for SMOS processing, and did tests. A paper submitted to IEEE TGRS. See presentation.*

New Action: A2\_1: Jacqueline Boutin's model will be made available once the paper is published.

**A1\_4:** Maggie Anguelova has plans to change for the L band foam emissivity, with a new version of the model. She will make the code available for evaluation.

*Done. Maggie tested the NRL and the LOCEAN model (provided by Paris observatory). Some possible issue with Paris observatory version of the LOCEAN foam. To be checked. Maggie did some modification to the L-band model and suggests to do similar analyses at higher frequencies. A projetct at W band should start in october. See presentation.*

New Action: A2\_2: The formula for the revised foam model will be sent to the group.

**A1\_5:** Thomas Meissner will make additional tests on the dielectric model with Zhou measurements for low frequencies and with Liebe model for the high frequencies.

*Done. See presentation. Thomas did some comparison of his model and Ellison model for a flat surface, to estimate the error.*

New action A2\_3: The Zhou data is not available yet. More lab measurements to be done, but not possible due to the shut-down. Question about the possibility to have dielectric measurements from Zhou at L-band for pure water. Share update in group at next meeting.

**A1\_6: Emmanuel Dinnat + team:** The group reached a consensus to work with Emmanuel Dinnat's 2 scale model as a core system. The Fortran code base requires some cleaning / commenting to facilitate sharing and joint development. During the development this will only be made available to a small core team.

*Done. A code is available on github in fortran for a small core team, for both passive and active applications. See presentation. Question from Fuzhong about the bistatic reflectivity. Emmanuel (and others) believes it is necessarily calculated by the code. It can be extracted by the user.*

**A1\_7: Fuzhong Weng:** The model will be compared to the model from Fuzhong Weng, who will also approach Ming Chen and Mark Liu to see if they wish to contribute to this effort.

*Open. Ming Chen and Mark Liu contacted but they did not respond. Presentation of the work done by Fuzhong and colleagues. Some issues with the Chinese instruments in terms of scan position with strong asymmetry (pb with the antenna reflector). The group uses FASTEM 6 so far but is looking for a model that could calculate the bisatic reflectivity, for coupling with the atmospheric radiative transfer with full scattering.*

**A1\_8: Stu Newman:** The two-scale model will also be used to calculate IR emissivities and compared to Stu Newman's results, to see how realistic this is.

*Open. Stu has a two-scale model and will compare it to campaign measurements. On-going.*

**A1\_9: Stephen English** will approach Nic Nalli to see if he also wishes to contribute to this IR emissivity validation exercise.

*Steve invited several colleagues to the meeting. They are willing to participate to the comparison exercise at IR frequencies.*

**A1\_10: Lise Kilic** presented comparisons between three different sea surface emissivity models (RSS, FASTEM and LOCEAN) with GMI observations over a year, between 10 and 166 GHz. Care has to be exercise in terms of data sampling for comparison with AMSR2.

New Action A2\_4: Some issues with the water vapor model and/or inputs at that stage in the comparison with GMI to be fixed.

*Question about which sounder to select for comparison to analyze the angular dependence of the emissvity model. ATMS seems to be the solution (even from the European point of view).*

### **Summary of progress**

Presentations were given by Thomas Meissner, Maggie Anguelova, Emmanuel Dinnat as leads for dielectric, foam and code status. No presentation was given on roughness models as Simon Yueh did not participate. Presentations were also given by Lise Kilic on her intercomparisons,

Jacqueline Boutine on the L-band dielectric model and Yang Han on the ARMS ocean model. These presentations are posted on the team website.

[New Action: We need a volunteer to lead on roughness models to replace Simon Yueh.](#)

**Tasks for next 6 months**

1. Continued consolidation and documentation of code on Github, testing by core group and plan for release to be discussed at next meeting.
2. Replacement for Simon Yueh to lead on roughness models

The next meeting is planned for 7-8 Decmber in two short sessions, remotely, in the fall. Hopefully a physical meeting at ISSI in spring 2021. Two years for the budget, so we should be still on time. Steve to confirm with ISSI.