

**Satellite & In Situ Salinity (SISS)
Working Group:
Current Status and Future Plans**

Yi Chao, Co-Chair
(Jacqueline Boutin, Co-Chair)

Aquarius Science Meeting
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Satellite & In Situ Salinity (SISS) Working Group

- Established at the SMOS-Aquarius science workshop during 15-17 April 2013 in Brest/France
- Co-chairs:
 - Jacqueline Boutin (LOCEAN/CNRS; SMOS)
 - Yi Chao (RSSI; Aquarius)
- Goal:
 - To improve our understanding of the link between L-band satellite (SMOS and Aquarius) remotely sensed salinity (for approximately the top 1 cm of the sea surface) and in situ measured salinity (routinely measured at a few meters depths by in situ sensors) and to develop practical methodologies for relating satellite salinity to other estimates of sea surface salinity.

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Questions that this WG should particularly address are:

1. What is the salinity stratification in the first 10m below the sea surface and its relation with the atmospheric forcing including wind and rain? Under what circumstances (particular atmospheric conditions and/or geographical regions) are the new satellite SSS able to provide a new reliable information on SSS within the first cm complementary to existing deeper in situ information for studying air-sea exchange processes? In case of a rain event, what is the magnitude of and could we correct for other effects than salinity affecting L-band radiometric measurements (roughness, atmosphere)?
2. What is the magnitude of SSS variability within satellite footprint (SMOS (40 km) and Aquarius (50-150 km)); how can we take it into account in in-situ and satellite SSS comparisons?
3. Which kind of experimental/numerical experiences could be envisaged for studying processes at play & answering above questions?

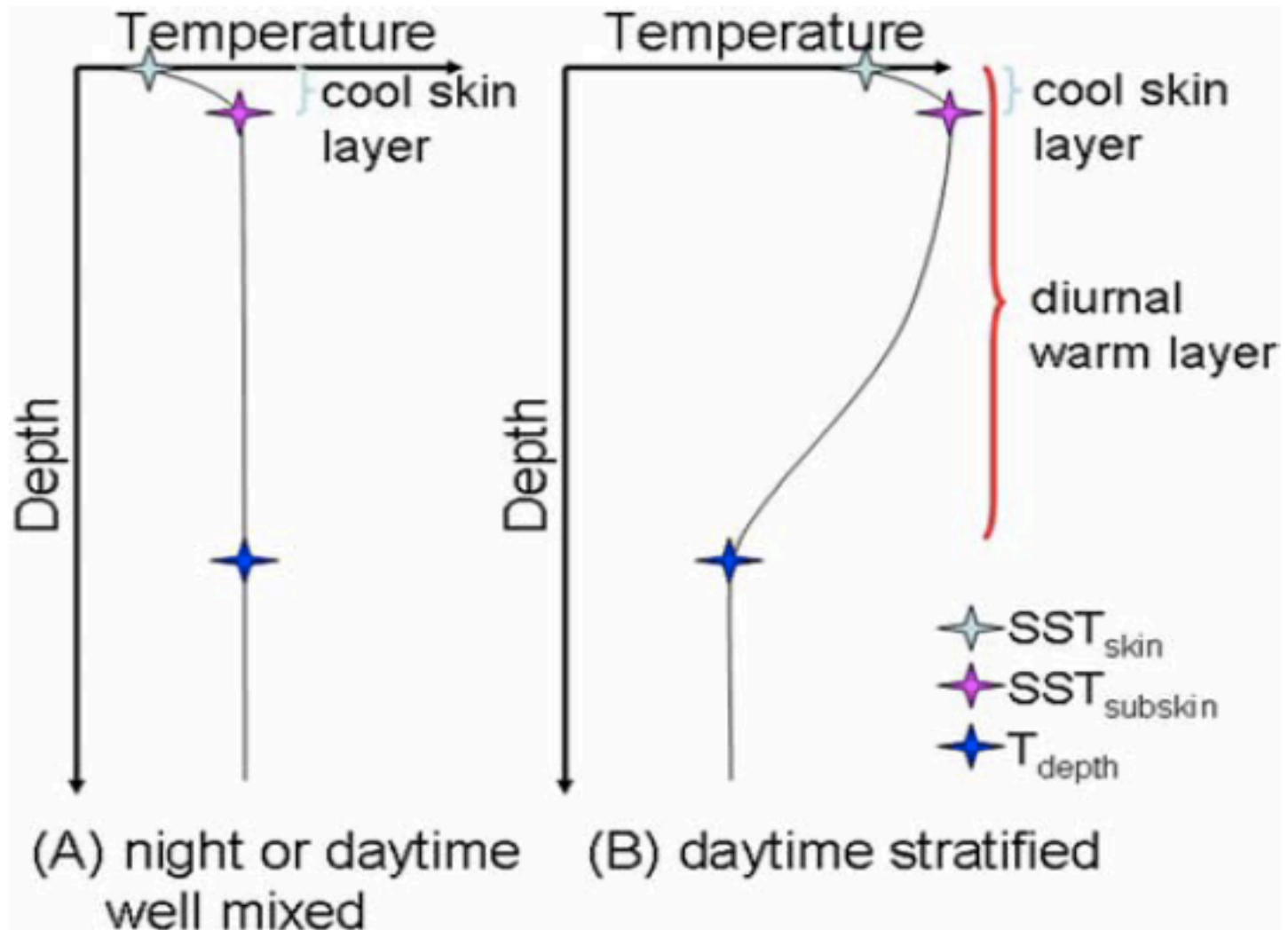
Satellite & In Situ Salinity (SISS) Working Group Activities

- Web site
 - <http://siss.locean-ipsl.upmc.fr/>
- Mailing list
 - 79 members
 - Contact co-chairs if interested; or use SISS-join@locean-ipsl.upmc.fr
- Meetings (informal)
 - AGU Ocean Sciences Meeting in Feb 2014
 - EGU meeting in April 2014

Satellite & In Situ Salinity (SISS) Working Group Task Team

- A task team was established at the AGU OS meeting in Feb 2014
- Task
 - To produce a schematic diagram of the near surface salinity, along with the definitions
- 12 members
- First draft was initiated by Bill Asher (thanks!) and presented at the EGU meeting in April 2014, with additional input and feedback collected

Goal: Develop a SSS Schematic Diagram like SST



Ground Rules for the SSS Schematic Diagram

- Satellite L-band radiometer measurement depth is in the range of 1 (35 psu) to 10 (0 psu) cm
- In situ salinity measurement (e.g., surface drifter, profiling float, ship underway) depth is in the range of 1 to 10 m

Second Draft SSS Schematic Diagram

Well Mixed

Stratified with Rain

Stratified with Evaporation

Salinity

Salinity

Salinity

Depth

Depth

Depth



*Rain-induced
fresh layer*

*Evaporation-
induced
salty layer*



Satellite L-band radiometric salinity at depth range from 1 to 10 centimeters



In situ salinity measurement at depth around 1 meter or deeper

SISS WG Future Plan and Activities

- Input and feedback are welcome (contact co-chairs)
- Another meeting is planned during the AGU Fall meeting December 2014 in San Francisco (possibly Thursday evening after the session: Ocean Salinity and Water Cycle Variability and Change)
- Additional input and feedback will be collected
- The SSS schematic diagram should be finalized shortly after the AGU Fall meeting
- A new task team will be formed (contact co-chairs if interested) to prepare a journal article (e.g., BAMS) early 2015
- Depending upon the progress and interests, another meeting can be organized at the EGU 2015 meeting

Thanks!

Questions?

Contact:

Yi Chao, Co-Chair

(Jacqueline Boutin, Co-Chair)