Minutes of Workshop general discussion

5th SALGEE Workshop
'MSG Land Surface Applications: Heat waves, Drought Hazard and Fire Monitoring'
20 September 2017, Ani Plaza Hotel, Yerevan, Armenia

This document summarises the discussions that took place at the SALGEE workshop, held at Yerevan, Armenia, Ani Plaza Hotel on 18-20 September 2017. It is presented in minutes format with the discussion grouped into themes. The minutes have been compiled by the **workshop chairperson**.

Chairs: Carlos DaCamara, **Julia Stoyanova**, Jose Prieto, Luis Pessanha

Suggestions to bridge LSA SAF products and user community

Discussion topics are based on main objectives of SALGEE User Group and its Role

Objectives of the SALGEE initiative

- Support to LSA SAF activities in user services & training in Eastern Europe and other regions of interest to take full advantage of remotely sensed data on land, land-atmosphere interactions and biosphere applications.

- Foster an integrated approach for research and operational activates in meteorology/climatology in support to quantification of biogeophysical and biogeochemical cycles and related land surface processes, combining information from in situ data, model outputs and satellite observations.

SALGEE Role

✓ Promotion of LSA SAF products: *Develop training materials to support the use of new land surface analysis methods and operationally generated geophysical products, and their application in operational meteorology and climatology.*

✓ Facilitate the product use: *Assist EUMETSAT in responding to the needs of NMSs in Eastern Europe and other target user regions for access to satellite data and training. Assist the LSA SAF on the use of satellite data and products for the purpose of land surface analysis.*

✓ Gathering experts & Exchange of knowledge: *Establish mechanisms and environment where scientists and user community provide feedback to product developers at EUMETSAT, LSA SAF, NOAA/NASA.*

The discusion topics are defined to review the future SALGEE activities.

Main Topics

1. **Satellite product availability**
    - LSA SAF products
    - Meteosat-1 (41.5°) – Indian Ocean mission (Meteorological Products)
2. **Products processing/visualization – Turkey, Bulgaria**
    - S-VIIRS data distributed through EUMETCast for operational use
    - LSA SAF LST
3. **Role of land-atmosphere coupling to produce high impact weather: Heat Waves (HW) and land surface state anomaly, Synoptic phenomena, Fires**
    - Key parameters and LSA SAF products (LST, ET, FVC)
    - Meteosat data (LSASAF LST / (LSASAF LST-T2m) values, WV imagery, RGBs) in support to diagnoses and forecast of 'dry' land surface anomalies and related effects
    - Drying from upper-level subsidence and drought severity, fire danger (Bulgaria, Greece, Cyprus, Turkey)
4. **Quantification of HW-drought effects with some focus on the role of soil moisture**
    - H-SAF (ECMWF) product for soil moisture.

The discusion topics are defined to review the future SALGEE activities.

Comments, suggestions, discussions on potential future activities

1. **Product availability**
    - LSA SAF products
    - Meteosat-1 (41.5° E)

• Luis Pessanha stress that LSA SAF products are free available. They can be get through EUMETCast in operational regime or through the Helpdesk after request. After registration on the LSA SAF website, the requested information should be specified – type, region, period and after 2-3 days/week you will receive them. Using these data we will need afterthat your feedbacks.

• Zara Petrosyan underlines that Armenian people will need some time to become more familiar with all these presentations from the workshop and will prepare their requirements and needs; they will communicate.

• Carlos DaCamara said that the most important to product developers is to know your response.

• Christo Georgiev suggests to define periods of drought and write to Help desk with request for data exactly for such periods to evaluate the behavior of LSA SAF products.

• Julia Stoyanova points that on the SALGEE web page there are a lot of examples from previous workshops how to use different LSA SAF products in circumstances of drought. In our work we make step by step foreword in using different products and going more deep in drought assessment using satellite information, NWP models, in situ measurements, and you can use this experience.

• Christo Georgiev also suggested information from Meteosat-8 (with sub satellite point located at 41.5°) is suitable to be used in Armenia and countries from this region. The data are available through the EUMETCast data flow, multicast channels as follows:

E1B-GEO-1	PID 301	IODC High Rate SEVIRI
E1B-GEO-2	PID 301	IODC Meteorological Products

The following topics are in the scope of future activities

Comments, suggestions, discussions on potential future activities

There are no plans these channel to be used for fires and LSA SAF products (this was discussed with Isabel Trigo during CDOP-3, 1st meeting) but for precipitation it would be useful for your countries to use this satellite.

- Luis Pessanha said that it is important first to gain experience with using the existing archive data.

2. Products processing/visualization – Turkey, Bulgaria

- S-VIIRS data distributed through EUMETCast for operational use

- Julia Stoyanova pointed that one of the tasks of SALGEE project 2016-2017 concerns the use of multimission satellite data in fire detection over Bulgaria for a restricted period. The aim is to perform comparative analyses of the sensitivity of different algorithms applicable for southeastern Europe (*results were here reported*) with accent on LSA SAF FRP. NASA archive information for actual fires detection based on the S-VIIRS 750 m resolution fire product is one of the fire products used. For the the first stage of this work decoded VIIRS data were provided by Wilfrid Schroeder (Univ. Maryland). It was planned software for processing and visualization of these data to be developed for further studies. This is a common task of NIMH and TSMS, including first pre-released version as reported by Erdem Erdi, and comparing the output with those provided by Univ. Maryland as a specific validation of the developed software. After finalization of the work this software it would beuseful to become available for SALGEE participating countries after request from TSMS and EUMETSAT.

  Meanwhile, since August 2017, EUETSAT started trial dissemination of NOAA VIIRS Active Fire Product through EUMETCast in nc-format. Access to this product was automatically provided for Member/Cooperating State NMS and registered manufacturers. Following a successful trial, it is planned to make the product available to the wider EUMETCast User community. Concerning with this we need to start working for developing a relevant software for processing this VIIRS data, with capabilities as presented by Erdem Erdi in his presentation during the workshop.

Comments, suggestions, discussions on potential future activities

- Erdem Erdi reminded that during the previous workshop it was discussed LSA SAF products to be provided in geotiff.
- Luis Pessanha accents that software for processing different LSA SAF satellite products is provided for free use at the website of VITO.
- Julia Stoyanova underlines the importance of using functional products like LST, ET. Many users/countries use NDVI like one of the first available for vegetation but LST is a good product with many potential applications. Here we have demonstrated the link between LST and soil moisture.

3. Role of land-atmosphere coupling to produce high impact weather: Heat Waves (HW) and land surface state, Synoptic phenomena, Fires.

- Key parameters and LSA SAF products (LST, ET, FVC)
- Meteosat data (LSA SAFLST-T2m) values, WV imagery, RGBs) in support to diagnoses and forecast of 'dry' land surface anomalies and related effects
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• Julia Stoyanova underlines that studying land-atmosphere interactions is a new topic in SALGEE. It is important to find indicators of atmosphere dynamics in case of weather extremes like increased fire risk. For USA and Australia a link between dry atmosphere intrusions and fire danger is found . For Mediterranean we (NIMH Bulgaria and EUMETAT) have reported such results on this workshop; participant from Greece accent on the link between drought conditions in 2007 with WV; Wilfrid Schroeder in his talk mentioned studies of NOAA on this topic as well. We have already initiated such types of studies.

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It would be relevant for the next WS the link between land surface anomalies and accompanying atmosphere features to be considered by participants in their presentations. Land surface state characteristics like LST, ET, FVC and their anomalies are especially important during 'dry'/'wet' anomalies. The behavior of these satellite products is good to be related from one side with the synoptic phenomena but from another with atmosphere dynamics features and related land-atmosphere interaction processes.

A new possibility is the using of microwave satellite information, for that purpose we have invited here Carlos Jimenez to introduce these type of date although they are still in non mature stage of development.

- Carlos DaCamara considers that there are still problems to jointly use of IR and MW data for LST, because of differences in resolution, emissivity, accounting penetration in clouds/ soil, etc. They work with Carlos Jimenez on the improvement of these data usage. He recommended products, which are already operationally available to be used and to find the most relevant specific use for different countries.
- Julia Stoyanova explained that they (NIMH) have initiated the use of LST SSM/I MW data (this was a single case) for scientific purposes, to check the relevance of these data for our region, and to become more familiar with their use on principle. We (at NIMH Bulgaria) think that, in parallel to the improvement of this type of information, to start using it for single case studies.
- Luis Pessanha draw attention that all weather types LST product will be available at LSA SAF in the future.

Comments, suggestions, discussions on potential future activities

- Julia Stoyanova also stressed on the necessity of fire risk assessment. Usually each country has different indexes in use and different meteorological parameters are of primary significance to accelerate fire risk. For example for Portugal wind from the ocean combined with high temperatures is a permanent fire risk factor. When we know which are the specific leading factors we can stress on them in accounting for fire risk on a national level.
- Carlos DaCamara underlines that he can provide the fire danger product adapting specific thresholds to corresponding country and again underlines LSA SAF products, which are already available to be used.
- Jose Prieto reminded that a decision from the previous SALGEE workshop was to prepare case study related to drought/fires, it can be posted in the EUMETSAT domain. He also underlines that for the new users of satellite information is better to start work first with using archive information.
- Julia Stoyanova took responsibility to summarise results from some presentations and such a case study to be developed up to the end of the year.
- Luis Pessanha paid attention that Land SAF works in close relations with H-SAF. Soil moisture is a product that might be used in these two area of application of satellite information.

Comments, suggestions, discussions on potential future activities

4. Quantification of HW-drought effects with some focus on the role of soil moisture

- H-SAF (ECMWF) product for soil moisture

• Julia Stoyanova stress on the necessity of inclusion soil moisture as a factor in assessing drought and fire risk. That is why in the program a topic for soil moisture obtained by ECMWF was included and presented by Patricia DeRosnay during her internet talk. In line with this we had preliminary talks with MeteoFrance to extend our knowledge on land surface characteristics including also albedo as an potential indicator of drought conditions.

• Marina Kordzakhia from Georgia underlines her interest in using soil moisture product. This will be important for hydrological purposes.

In **Conclusion,** Julia Stoyanova explained that all presentations will be distributed among participants. All materials will be published on SALGEE web page, located on Moodle platform in the EUMETSAT internet domain.).

Contacts and work will continue in line with here presented main topics.

If Armenia or any other participating country has some suggestions or enquires they are welcome to contact the SALGEE Steering Group. It is important the Workshop participants to remain in contact from their Institutions in order to start working for the next SALGEE workshop: To prepare common studies, to select common test periods and to look for specific reveals of processes in different climates using the same LSA SAF products, e.g. fire danger, LST, FVC, ET, etc.

Thanks to Armenia host institution were expressed for the good organization by all attending.

End of document.

Julia Stoyanova

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