

SPARC Activity Report 2018

TUNER

I. Achievements and Plans

The goal of TUNER is to provide a complete and consistent data characterization in terms of uncertainty, resolution and content of a priori information, for the largest possible number of space-borne temperature and composition sounders. Specific objectives have been listed in previous reports.

Activities undertaken since the last report include:

1. A TUNER ISSI International Team Meeting was held in Berne on 4-8 December 2017. The venue facilitated an excellent discussion and an opportunity to plan and set the direction for TUNER activities.
2. A TUNER special issue has been implemented by the open access journal Atmospheric Measurement Techniques. The first couple of papers have already been published.
3. An overview paper has been drafted which lays down a terminology and a common methodological understanding of error reporting which is hoped to be applicable to all instruments under assessment.
4. Further topics of general interest have been identified which are beyond the scope of the overview paper mentioned under #3 but still deserve investigation. Drafting has been started. Examples are
 - a) links between the statistical and metrological communities
 - b) errors which are neither purely random nor purely systematic.
5. Work on specific studies has been pursued further. This includes but is not limited to
 - 5.1. The use of model data to determine how large discrepancies in validation studies can be attributed to natural variability of the atmosphere along with less than perfect coincidences of measurements.
 - 5.2. Random error recalibration using at least three different measurements.
 - 5.3. Assessment of the error which is caused by application of mean averaging kernels to mean vertical profiles.
6. A TUNER Meeting at IMK, Karlsruhe, has been scheduled for 4-7 December 2018
7. A TUNER ISSI International Team Meeting has been scheduled for 1-5 April 2019. Reservations for ISSI facilities have been made.

The following activities have been planned for 2019:

1. A TUNER ISSI International Team meeting will be held in Berne on 1-5 April 2019
2. The Overview Paper mentioned above shall be finalized.
3. The specific studies mentioned above shall be pursued further and related papers shall be written.
4. A decision will be made about a possible further team meeting later in 2019.

II. Resources

Possible support by SPARC:

1. While a per diem will cover board and lodging costs of the ISSI International team members, travel support for some members to cover the air fee would be helpful.
2. Travel support for a possible second team meeting in 2019 would help younger scientists who do not have sufficient travel funds available to join the meeting.

Funding proposals:

It has been tried to obtain some ESA funding but without success by now. The SPARC SSG could create awareness of the importance of this project on ESA side.

III. WCRP Communications

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Data issues/needs: none for the time being;

Modelling issues/needs: for the time being the needed model data are available. In a longer term high-resolved model fields of temperature and constituents may be required.

IV. SPARC Programmatic Issues

Connection to other SPARC or WCRP activities: Our team includes liaison scientists from relevant other SPARC activities.

Capacity development: No activities of this kind have been undertaken so far. Such activities are planned for the final phase of the activity.

Further possible SPARC assistance: Normative documents on metrology as issued by the BIPM seem to be in conflict with the needs of the atmospheric measurements community in general and the remote sensing community in particular. The SPARC SSG with their authority and international weight could act as a door opener for TUNER to be heard by the BIPM. Ideally, this would lead to a dialogue between the communities.
