

Action status Advanced Sounder Working Group

21st International TOVS Study Conference (ITSC)

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Advanced Sounders Working Group

ADVANCED SOUNDERS

Web site: <http://cimss.ssec.wisc.edu/itwg/aswg/>

Working Group members: Dieter Klaes (Co-Chair, EUMETSAT), William L. Smith (Co-Chair, SSEC/UW-Madison and Hampton Univ.), Jörg Ackermann (EUMETSAT), Nigel Atkinson (Met Office, UK), Thomas August (EUMETSAT), Fabrizio Baordo (BOM), Chris Barnet (Science and Technology Corp.), Patrik Benáček (CHMI), Sid Boukabara (NOAA/NESDIS&JCSDA), James Cameron (Met Office, UK), Keyi Chen (LAP.CAS), Chu- Yong Chung (NMSC/KMA), Dorothee Coppens (EUMETSAT), Mohamed Dahoui (ECMWF), Stephen English (ECMWF), Reima Eresmaa (ECMWF), Louis Garand (Environment Canada), Mitch Goldberg (NOAA), Vincent Guidard (Météo France), Yong Han (NOAASTAR), Wei Han, (NWPC/CMA), Allen Huang (CIMSS/SSEC), James Jung (CIMSS), Björn Lambrigtsen (JPL), Jinlong Li (CIMSS/UW Madison), Jun Li (UW Madison), Agnes Lim (CIMSS), Nick Nalli (NOAA/NESDIS/STAR), Eric Pequinot (CNES), Myriam Peyre (Météo-France), Alexander Polyakov (St.Petersburg University), Joe Predina (Logistikos Engineering), Roger Randriamampianina (MET Norway), Indira Rani (NCMRWF, India), Awdhesh Sharma (NOAA/NESDIS/OSPO), Sanseev Kumar Singh (NCMRWF India), Yi Song (NESDIS/STAR), Steve Swadley (NRL), Denis Tremblay (NOAA-STAR), Alexander Uspensky (SRC Planeta), Likun Wang (UMD), Xiaozhen Xiong (NOAA/NESDIS/STAR), Tiger Yang (NOAA-STAR)

Working Group Goals

The Advanced Sounder Working Group (ASWG) focuses on **scientific issues** affecting the **optimal performance** of advanced satellite sounder systems. The working group reviews **the status of the development** of advanced sounder systems and **recommends changes** pertaining to instrument **specification, performance, data processing, and utilisation**. For the purpose of this group, “Advanced Sounders” are defined as instruments that present **significant new scientific and technological challenges** and which require **new methods** for data processing and utilization. Thus, Advanced Sounders currently include high spectral/spatial resolution passive **infrared and microwave** sounders and **active** sensors.

Recommendation AS-1 to Space Agencies

Consider the following priorities for the development/improvement of the next generation of advanced infrared sounders.

The prioritized recommendation lists from the highest are:

- 1. High spatial resolution to improve the probability of a uniform scene with the instrument FOV (i.e., all clear or all cloudy).**
- 2. Spectral coverage from shortwave to longwave without gaps – to facilitate improved inter-satellite instrument cross-calibration.**
- 3. Adopt/adapt calibration approaches traceable to international standards – to improve absolute radiometric calibration in order to achieve measurements closer to climate quality.**

Action AS-1 to ITWG Co-Chairs

Bring this recommendation to the attention of Space Agencies at CGMS.

CLOSED. Done at CGMS-44.

AS-2 and AS-3

Recommendation AS-2 to Space Agencies

Coordinate with NWP Centres the generation of high resolution (1-3 km) nature runs.

Action AS-2 to ITWG Co-Chairs

Convey this recommendation to Space Agencies.

CLOSED Done at CGMS 44. In addition from Niels: ECMWF is in the process of preparing a new nature run at T_Co 1279 resolution (i.e. ~9.5 km), to replace the earlier T_L 511 (~40 km) version.

Action AS-3 to Stephen English

To investigate higher resolution nature runs at ECMWF and report back to ASWG.

CLOSED. From Steve: ECMWF will produce a new nature run (see also above). Lars Isaksen is managing on the ECMWF side and discussing requirements with Ross Hoffman. It will run at ECMWF's current operational resolution (~9 km).

Recommendation AS-3 to Space Agencies (NOAA)

Support further developments towards performing cluster analysis on imager pixels within advanced IR sounder field-of-views and providing statistical information of the collocated imager radiances as part of the sounder radiance observations. (The ASWG recommends that satellite agencies adopt the IASI/AVHRR approach to collocate CrIS/VIIRS observations and provide radiance cluster and other analysis information in the CrIS SDR file.)

Action AS-4 to ITWG Co-Chairs

Convey this recommendation to Space Agencies (and NOAA in particular).

OPEN: Done for CrIS/VIIRS? Check with Mitch.

Recommendation AS-4 to NOAA

Future JPSS instrument enhancements should consider adding 118 GHz O₂ band to the baseline design to advance the microwave sounding capability for the retrieval of precipitation over land and sea, including light precipitation and snowfall.

Action AS-5 to Mitch Goldberg

Convey this recommendation to NOAA.

OPEN: Check with Mitch.

Recommendation AS-5 to Space Agencies and Users

Establish a dialogue between providers and users of microwave soundings on the potential and capabilities of bolometer technology at 90 GHz and beyond.

Action AS-6

Steve English to act as the interface and provide related documentation.

CLOSED. Checked with Steve. He thinks it is still early days for the technology but at ECMWF they are keeping in touch with academic groups developing this technology. ECMWF strongly supported a proposal in February 2017 for a prototype airborne system, but Steve has not heard the outcome and he has emailed the PI. It would be good to report on this if something is happening, otherwise he thinks it is just for ITWG to be aware that developments in this area are possible, but there is no significant progress to report.

AS-7 and AS-8

Recommendation AS-6 to Space Agencies

Maintain and evolve the current microwave sounding capabilities for future systems.

Recommendation AS-7 to Space Agencies

Maintain and evolve the capability of microwave mesospheric sounding capabilities beyond SSMIS.

Action AS-7

ITWG Co-chairs to relay these recommendations to Space Agencies via CGMS.

CLOSED. Was done at CGMS-44.

Recommendation AS-8 to Space Agencies

Conduct studies to pursue high temporal resolution hyper spectral microwave sounding capabilities for future systems.

Action AS-8

ITWG Co-chairs to relay this recommendation to Space Agencies via CGMS.

CLOSED. Was done at CGMS-44.

AS-9 and AS-10

Recommendation AS-9 to NASA
To implement the PATH mission.

Action AS-9

ITWG Co-chairs to bring this recommendation to the attention of NASA.

CLOSE? Does this mission still exist? There will be a new decadal survey this year.

Recommendation AS-10 to Space Agencies

To pursue further development and implementation of microwave sounding missions in order to achieve global coverage of geostationary microwave sounding.

Action AS-10

ITWG Co-chairs to relay this recommendation to Space Agencies via CGMS.

CLOSED. Done at CGMS?

Recommendation AS-11 to space agencies

Develop, test, and implement an SI Traceable radiometric standard in space as soon as feasible.

Action AS-11

ITWG Co-chairs to re-iterate this recommendation to Space Agencies via CGMS.

CLOSED. Done at CGMS-44.



Advanced Sounder Working Group Meeting

Saturday 2 December

Ferrum Meeting Room (Plenary)

08:30 – 12:30

Break 10:15 -10:45