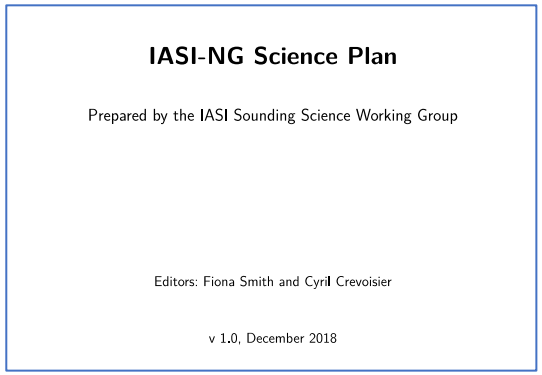
Introduction of the side meeting objectives and content

Cyril Crevoisier

A side session on IASI-NG validation

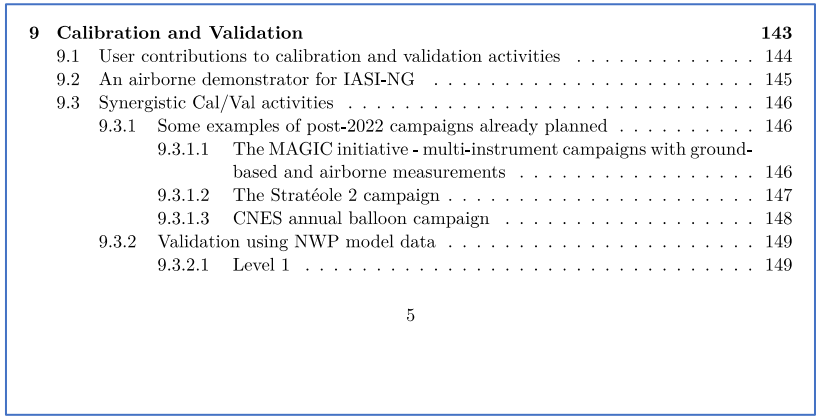
- **With the fast coming launch of Metop-SG-A1, the organization of cal/val activities is essential.**
- **Several activities are planned by the agencies at Level1 and Level2**
  - Detailed in IASI-NG L2 cal/val plan available on EUMETSAT website (link to come…)
  - Operational monitoring of Level1 and several Level2
    → See presentation by Simon Warnach
- **Additional 'scientific' cal/val activities are planned by the scientific community at Level 1 and Level 2**
  - General overview in IASI-NG Science Plan written by ISSWG
    → https://www-cdn.eumetsat.int/files/2020-04/pdf_science_epssg_iasi_ng_plan.pdf
  - Suggested activities: Mostly campaigns and comparison with models, but also needs for regular measurements
  - Specific discussions have taken place in some ISSWG meetings to start exploring available means and lessons learned from previous cal/cal campaigns.


IASI-NG Science Plan

Prepared by the IASI Sounding Science Working Group

Editors: Fiona Smith and Cyril Crevoisier

v 1.0, December 2018



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A side session on IASI-NG validation

- **Specific challenges:**
  - IASI-NG will detect/measure a large number of geophysical variables
  - Need to quantify the improvement from going from IASI to IASI-NG

Product	Vertical Resolution	Accuracy	Reference data source
Temperature profile	LT, MT: 0.8 km UT, S: 2 km	LT, MT: 0.8 K UT, S: 1.2 K	Sondes RO dry-T strato NWP analysis Can we demonstrate 0.8K?
Specific humidity profile	LT: 1.2 km MT, UT: 1.5 km S: 3 km	LT: 5 % MT, UT: 7 % S: 20 %	Sondes NWP analysis Ground-based Lidar, MWR Can we demonstrate 5% ? Other? LHD?
Water vapour total column	N/A	5 %	Ground-based GPS High resolution radiometer? Other?

Product	Vertical Resolution	Accuracy	Reference data source
Sea surface temperature	N/A	0.3 K	Buoys OSTIA High resolution LEO/GEO radiometers
Land surface temperature	N/A	1 K	Ground-based radiometers Space-based high resolution radiometers, e.g. SEVIRI LSA
Ice surface temperature	N/A	1 K	In situ measurements... High-resolution radiometers?
Land and ice surface emissivity	N/A	1 %	Direct measurments? Aircraft (ARIES?)

A side session on IASI-NG validation

Product	Vertical Resolution	Accuracy	Reference data source
Carbon monoxide profile	3 km	3 km LT: 30 % MT: 25 % HT, S: 20 %	In situ measurements (airborne, ground) Space-borne missions? Other?
Carbon monoxide partial column	3 km	10 %	NDACC ground stations
Ozone profile	3 km	LT,MT, UT: 20 % S: 10 %	O_3 sondes Other space missions? Model?
Ozone total column	N/A	5 %	Ground Brewer, Dobson
Sulphur dioxide total column	N/A	50 %	?
Nitric acid partial column	T, S	20 %	NDACC?

Product	Vertical Resolution	Accuracy	Reference data source
Cloud detection and fractional coverage	6 km	10 %	GEO/LEO imagery Ground-based WSI, other ?
Cloud top phase	N/A	10 %	???
Cloud top height /pressure	N/A	0.2 km	Ground-based cloud radar, Lidars Space-based active sensors (CALIPSO, EarthCare...)
Cloud drop effective radius at cloud top	N/A	5 µm	???
Cloud liquid water path from MWS and IAS	N/A	5 %	Ground-based radar, MWR? Space-borne data: EartCare, CloudSat? Can we demonstrate 5% ?

Product	Reference data source
Dust AOD at 10 µm	GEO/LEO imagery Aeronet
Dust mean altitude	Ground-based and airborne lidars, space lidars
Effective radius	?

A side session on IASI-NG validation

- **Specific challenges:**
  - IASI-NG will detect/measure a large number of geophysical variables
  - Need to quantify the improvement from going from IASI to IASI-NG
  - **Short-term vs. long-term activities**
    → here, the focus will be on short-term.
    → e.g. the IASI-IASI-NG tandem flight
  - **IASI-NG won't be alone on Metop-SG-A1.**
    → Need for synergies with other missions planned activities
  - **Network development, instrument deployment and field campaigns require huge efforts in terms of preparation, logistics, human resources and budget.**
    → Need to plan activities now
    → Build on existing/planned activities (either validation or science oriented)

A side session on IASI-NG validation

- **Two sessions devoted to validation:**
  - The 'Validation session' (4 talks and 1 poster)
  - A dedicated 'Side session' for discussion
- **Objectives of the side session:**
  - To gather the feedback from the community concerning the needs for validation activities
  - To discuss existing/planned instruments/campaigns and how they can support IASI-NG validation
  - To design specific/missing activities
  - To explore potential synergies with other missions (Metop-SG-A, MTG, EE, others)
- **Date and time:**
  - Today at 16:15
  - In parallel to the poster session
- **Place: Room 102**

Everybody is welcome to shape (and participate to) the future IASI-NG validation activities!!