

COST ACTION 723 Draft Workplan

Working Group 1 (WG1): Data and Measurement Techniques

Interested parties: Stefan Bühler (Germany), Per Hoeg (Denmark), Rigel Kivi (Finland), Tuomo Suorti (Finland), Bozena Lapeta (Poland), Emilio Cuevas (Spain), Manuel Gil (Spain), Alberto Adriani (Italy), Dietrich Feist (Switzerland)

Work Programme (WP):

- Gather data of the key parameters and make it available to the Action. Focus on the key parameters humidity, ozone, temperature, and pressure. Anticipated data sources:
 - Humidity:
 - Radiosondes
 - Meteorological satellites
 - Radio occultation satellites
 - MOZAIC
 - Ground bases Raman lidar
 - Envisat
 - Ozone:
 - Ozone sondes
 - Envisat
 - Research balloons?
 - Temperature:
 - Radiosondes
 - Meteorological satellites
 - Pressure:
 - Radiosondes
 - Radio occultation satellites
- Document data access where data is already obtainable online
- Put available data that is not yet obtainable online in a database. Anticipated for:
 - High resolution / high quality humidity radiosondes
 - Non standard products from Meteorological Sensors
 - Non standard products from Envisat
- Cross-validation of the various data sources by intercomparison studies. Anticipated activities:
 - Comparison of satellite radiances (MSG and AMSU) to modeled radiances based on radiosondes
 - Direct comparison of different in situ and remote sensors from dedicated ground stations
- Studies to improve the accuracy of existing sensors and to develop new sensors. Anticipated activities:
 - Improved humidity radiosonde calibration
 - Instrument studies for new satellite sensors (ACE+, MASTER)
 - Spectroscopy studies to improve the analysis of remotely sensed data
- Provide input to measurement campaigns

Requirements from/to other WGs:

- Data Requirements from WG2 and WG3

Gaps/extensions in MoU:

- Focus on data required by WG2: Humidity, ozone, temperature, and pressure
- More specialized or more longterm datasets for WG3 may be added

Deliverables:

These deliverables will be produced within the framework of a number of national and European projects.

- Documentation for data access and data usage
- Database with data not otherwise available (radiosonde humidity data, new satellite products)
- Publications about data quality, validation, and intercomparison results

Estimated timetable for performing proposed tasks:

FIXME: TBD.

Working Group 2 (WG2): An assimilated Ozone and Humidity Dataset

Interested parties: William Lahoz (UK), Peter Siegmund (The Netherlands), Philippe Ricaud (France), Hendrik Elbern (Germany), Zdenek Zelinger (Czech Republic)

Work Programme (WP):

- Algorithms to assimilate research satellite data (e.g., GOME, ODIN, Envisat) into GCMs and CTMs
- Assimilation of retrieved research satellite data (troposphere, temperature, ozone, water vapour, NO₂, N₂O, ClO) into GCMs and CTMs
- Evaluation of assimilation algorithm, model, and retrieval parameters
- Evaluation of existing and future UTLS datasets via: (i) assimilation, (ii) comparison between assimilated datasets, (iii) comparison between constrained and non-constrained model datasets, and (iv) comparison with independent data
- Evaluation of key parameters in UTLS to study (i) dynamics, (ii) chemistry, and (iii) climate
- Evaluation of merit of combining limb and nadir geometries using, e.g., measurement techniques, assimilation studies
- Production of quality controlled datasets in UTLS including documentation: (i) temperature, (ii) ozone, and (iii) water vapour
- Assimilation of limb radiances into GCMs and CTMs

Requirements from/to other WGs:

- Data and associated errors from WG1 *What kind of data: meteorological data processed differently from NWP, GPS, radiosondes (temperature, humidity), ozonesondes, balloons, field campaigns to evaluate assimilated datasets. WG1 will also be involved in the evaluation of this data. Access to data from, e.g., NILU, SPARC database. Long-term data at a particular data?*
- Information on new measurements and platforms (WG1) *Upcoming field campaigns*
- Provide quality-controlled data to WG3 *6+ months of assimilated temperature, ozone and water vapour (see ASSET). COST will only focus on climatological studies and dynamical processes of the UTLS. COST action will not focus on photochemical process in WG3. Provide quality-controlled data to WG1 for comparison between radiances computed from assimilated datasets and independent datasets*
- Help assess new sensors (WG1) *Weakness on data coverage of UTLS region based on best available data. Using results from WG2, WG3.*
- Help evaluate results from field campaigns (WG1) *Which measurements: temperature, ozone and water vapour using assimilated datasets*

Gaps/extensions in MoU:

- Use of measurements besides research satellite data? Examples include sondes, balloons, aircraft associated with intensive field campaigns.

- How will we assess the impact of the UTLS on global change? How do we include anthropogenic impacts? Do we need climate models? (WG3) *WG3 will attempt to identify variability and “trends”. Results will feed into discussion of global change.*

Deliverables:

These deliverables will be produced within the framework of a number of national and European projects.

- Algorithms to assimilate research satellite into GCMs and CTMs
- Report on available UTLS assimilated datasets including evaluation of data quality, documentation and contact points.
- Report on key parameters in UTLS to study (i) dynamics, (ii) chemistry, and (iii) climate
- Report on merit of combining limb and nadir geometries using, e.g., measurement techniques, assimilation studies
- Quality controlled datasets in UTLS including documentation: (i) temperature, (ii) ozone, and (iii) water vapour
- Report on assimilation of limb radiances into GCMs and CTMs

Estimated timetable for performing proposed tasks:

- Summary progress reports for WG2 (Months 12, 24, 36, 48)
- Report of algorithms (Month 48)
- Quality –controlled datasets (Month 48)
- Preliminary studies on radiances (Month 48)

Working Group 3 (WG3): Assessing the State of the UTLS and Understanding the Relevant Processes

Interested parties: Bernard Legras (France), Geraint Vaughan (UK), FIXME: Who else?

Work Programme (WP):

Requirements from/to other WGs:

Gaps/extensions in MoU:

Deliverables:

Estimated timetable for performing proposed tasks: