

T1-A8. Thirty Years of the Network for **Detection of Atmospheric Composition** Change (NDACC): Contributions to Metrology.

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NDACC Organization – Working Groups, Cooperating Networks, QA, Data System **Executive Secretary** Co-Chair Co-Chair NDACC Peer, Ex Officio, Emeritus, and M. De Mazière (BIRA) & I. Working Group Representatives Cooperating Network Representative Petropavlovskikh (NOAA) Working Groups and Theme Groups **Quality Assurance Instrument Working** Dobson and Brewer FTIR LIDAR Microwave Sondes Spectral UV UV-Visible Protocols **Groups** develop their Theory and Vapour Strategies ata Integratio own calibrations, instrument tests, data **Cooperating Networks** Goals and Results processing-quality protocols, EUBREWNET intercomparisons Partners satellite validation (see Data Host Facility and website ACTRIS **TROPOMI** example / evdc WOUDC below) -----Tropospheric NO₂ Column Total CH₄ Column Total NO₂ Column NO2 tropospheric column at Mohali, India ()**Total HCHO Column** CHO tropospheric column at Cabauw. The Netherlands Boulder (39.99)-Izana (28.30)-Mauna Loa (19.54)-Altzomoni (19.12)-all on the Porto Vulho (-8.77)-Lauder (-45.54)-Arrival (-77.82)-Stratospheric NO₂ Column bison a sol for the sol for th **Cloud Top Height** entinel-5P MPC Validation Server http://mpc-vdaf-server.tropomi.eu Sentinel-5P product types



https://mpc-vdaf-server.tropomi.eu



Outline

What is NDACC?

- NDACC = ~115 sites globally dedicated to ground-based measurements of atmospheric constituents related to climate change. Began in 1991 => 30+ years of records.
- NDACC contributes to a "network of networks" with cooperating networks

NDACC committed to being a "model for metrology"

- FAIR (Findable, Accessible, Interoperable, Reproducible) data access
- All NDACC instruments & affiliated networks committed to "best practices" in quality assurance (QA), Fiducial Ref Measurements

NDACC Status (ndacc.org)

- > ~115 stations, ~105 active
- > 178 instruments
- Fiducial Reference Measurements (FRM) – validate satellites
- Rapid data delivery (option)
- > Observational capabilities (see chart in the upper corner)

Summary

- **NDACC celebrates 30+ years** of highest-quality measurements contributing to global observing systems
- NDACC's emphasis on metrology has made it a leader in Cal/Val and FRM for past, present and future satellites
- NDACC's metrological success for climate monitoring depends on sustained international commitments for station operations, reference standards, intercomparison and archiving facilities



Total Column

Vertical Profiles



8 instrument Working Groups + standard operation protocols + common processing algorithms. Interdisciplinary

theme groups

Atmospheric Composition -30+ short- and long-lived hemicals + aerosols + wind temperature + UV radiation

NDACC recognized as provider of highest-quality reference (FRM) data

Detection = Calibrated and quality assured data + validation +

Change = Long-term NDACC datasets + cooperating networks + ttribution with models (i.e WMO/UNEP Ozone Assessment 2022, SPARC LOTUS, OCTAV-UTLS)

Open data archive https://wwwair.larc.nasa.gov/missions/n dacc/sc space/