

# E-PROFILE



**A not official Glossary  
with almost 100 acronyms**

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***Official Glossary***

<https://www.eumetnet.eu/glossary/>

[https://www.eumetnet.eu/wp-content/uploads/2016/10/ALC\\_glossary.pdf](https://www.eumetnet.eu/wp-content/uploads/2016/10/ALC_glossary.pdf)

# Glossary

## #

**3D-VAR** - Three-dimensional variational assimilation (3D-Var). In the derivation of Optimal Interpolation, we found the optimal weight matrix  $W$  that minimizes the total analysis error variance

**3DEnVar** - 3D Ensemble-Variational Data Assimilation algorithm

**4D-VAR** - Twenty years ago ECMWF added an extra dimension – time – to the assimilation of observational data into weather models. This pioneering ‘4D-Var’ technique has led to substantial improvements in the Centre’s forecasts. Developing a 4D variational data assimilation system was one of ECMWF’s biggest-ever projects. It culminated in the operational implementation of 4D-VAR on 25 November 1997, less than two years after the introduction of 3D-VAR.

**4DEnVar** - 4D Ensemble-Variational Data Assimilation algorithm

# - number, quantity

## A

**A-O** - Observation minus Analysis

**ACTIRS** - is the pan-European research infrastructure producing high-quality data and information on short-lived atmospheric constituents and on the processes leading to the variability of these constituents in natural and controlled atmospheres.

**AE** - Ångström Exponent

**AERONET** - Aerosol Robotic Network

**AGL** - Above Ground Level

**ALH** - Aerosol Layer Height

**ALC** - Automatic Lidar Celiometer. Automatic low-power lidars and ceilometers (ALC) are single-wavelength, low-power, automatic lidars typically operating at wavelengths ranging from 850 to 1064 nm. Ceilometers were originally designed to provide the cloud base altitude. Since clouds are very strong scatterers at near-infrared wavelengths, these systems do not require the high power and complexity expected for aerosol lidar systems. However, the sensitivity of current ALC is sufficient to detect aerosol layers and ice clouds.

**AOD** - Aerosol Optical Depth

**API** - Application Programming Interface

**ASL** - Above Sea Level

**ASCII** - American Standard Code for Information Interchange

**ATLID** - Atmospheric Lidar

## **B**

**BC** - Black Carbon

**BLB / BLS** - Brightness temperatures from multi-angle elevation scans

**BRT** - Brightness Temperatures (single angle)

**BSP** - Byte per Second

**BUFR** - The Binary Universal Form for the Representation of meteorological data (BUFR) is a binary data format maintained by the World Meteorological Organization (WMO). BUFR was created in 1988 with the goal of replacing the WMO's dozens of character-based, position-driven meteorological codes, such as SYNOP (surface observations), TEMP (upper air soundings) and CLIMAT (monthly climatological data). BUFR was designed to be portable, compact, and universal. Any kind of data can be represented, along with its specific spatial/temporal context and any other associated metadata. In the WMO terminology, BUFR belongs to the category of table-driven code forms, where the meaning of data elements is determined by referring to a set of tables that are kept and maintained separately from the message itself. BUFR is a complex format that can be difficult to use and it presents some weaknesses. The introduction of BUFR format led to data "disparition" and many formatting errors.

**BUSINESS CASE** - Business Case: A business case provides justification for undertaking a project, programme or portfolio. It evaluates the benefit, cost and risk of alternative options and provides a rationale for the preferred solution (from <https://www.apm.org.uk/resources/what-is-project-management/what-is-a-business-case/>)

## **C**

**CAL/VAL** - Calibration / Validation

**CAMS** - The regional air quality production of the Copernicus Atmosphere Monitoring Service (CAMS) is based on an ensemble of 11 state-of-the-art numerical air quality models developed in Europe : CHIMERE from INERIS (France), EMEP from MET Norway (Norway), EURAD-IM from [Jülich IEK](#) (Germany), LOTOS-EUROS from KNMI and TNO (Netherlands), MATCH from SMHI (Sweden), MOCAGE from METEO-FRANCE (France), SILAM from FMI (Finland), DEHM from AARHUS UNIVERSITY (Denmark), and GEM-AQ from IEP-NRI (Poland), MONARCH from BSC (Spain) and MINNI from ENEA (Italy).

**CBH** - Cloud Base Height

**CEDA** - Centre for Environmental Analysis

**CTM** - Chemistry Transport Model

## D

**DCR** - Doppler Cloud Radars

**DLWP** - Doppler Lidar Wind Profiles

**DWL** - Doppler Wind Lidars

## E

**E-PROFILE** - is part of the EUMETNET Composite Observing System, EUCOS, managing the European networks of radar wind profilers (RWP) and automatic lidars and ceilometers (ALC) for the monitoring of vertical profiles of wind and aerosols including volcanic ash

**EIG agreement** - The Network of European Meteorological Services, an economic interest grouping under Belgian law of 31 European NMHSs (national meteorological and hydrological services). Establishing Economic interest grouping (EIG) Agreement establishing Economic interest grouping (EIG) (Company's act) The agreement establishing EIG shall be drawn up in a form of notarial act and shall include the following:

- name;
- seat of the EIG;
- full name or company's name, legal form, seat or the place of residence of the shareholders, the register and the registration number of the companies-shareholders;

The time limit of EIG's establishment, unless EIG is established for the indefinite period. The agreement has the third-party effects from the day of its publication. The application as well as all the additional changes shall be submitted by all shareholders of the EIG jointly.

**ET** - Expert Team

**EUCOS** - EUMETNET Composite Observing System

**EUMENET** - The European NMS formed EUMETNET in 1996 as the Conference of the NMS in Europe. It was established as an association without legal personality with a primary mission to help cooperation and collaboration among its members and to represent them externally on a collective basis, particularly when communicating with European organizations, especially the EU and EC. Enhanced cooperation between members has been achieved in fields of science, technology, skills and services. The focus has been on the core capabilities of the members, in particular: observing systems, data bases, data processing and data communications systems, basic forecasting products, research and development, training, coordination of technical assistance, and production of essential output information to end-users – especially the citizens of Europe.

At the time of incorporation of the EUMETNET EIG, the members of EUMETNET are the NMS of: Austria, Belgium, Croatia, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Luxemburg, Netherlands, Norway, Poland, Portugal, Serbia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

**EUCOS** - is the EUMETNET Composite Observing System, a program to deliver terrestrially based operational observations for the efficient improvement of regional NWP in Europe. In addition EUCOS provides a framework for national observing networks and makes a significant contribution to the WWW.

**EUMETFREQ** - a program of EUMENET to coordinate radio frequency user community

**EUMETRep** - xxx

**ERA5** - ECMWF Re Analysis Fifth Generation, is the fifth generation ECMWF atmospheric reanalysis of the global climate covering the period from January 1940 to present. ERA5 is produced by the Copernicus Climate Change Service (C3S) at ECMWF. ERA5 provides hourly estimates of a large number of atmospheric, land and oceanic climate variables. The data cover the Earth on a 30km grid and resolve the atmosphere using 137 levels from the surface up to a height of 80km. ERA5 includes information about uncertainties for all variables at reduced spatial and temporal resolutions.

**ESA** - European Space Agency

**EMER-Met** - Emergency Response Meteorology

**ENSI** - Ensemble Statistical Interpolation

## F

**FMF** - Fine Mode Fraction

**FSO** - Forecast Sensitivity to Observation

**FTP** - File Transfer Protocol

## G

**GUI** - Graphic Utility Interface

## H

**HDK** - House Keeping Data is the process of keeping your device clear of unnecessary data, which helps it to run more efficiently

## I

**IFS** - Integrated Forecasting System

**ICON** - ICOSahedral Nonhydrostatic modeling system

**Instruments** accepted in E-PROFILE project:

**Ceilometer**

- VAISALA - CL31
- VAISALA - CL51

- VAISALA - CL61
- Luftt - Nimbus CHM-15k
- Luftt - Nimbus CHM-8k
- Raymetrics - LR111-D300
- Campbell Scientific - CS135
- Sigma Space - Sigma MPL
- Sigma Space - Mini-MPL

#### **Radiometer**

- ATTEX - MTP5-HE
- RPG - HATPRO G1-G5
- RPG - HUMPRO
- RPG - TEMPRO
- RPG - LWP
- RPG - LHATPRO
- RPG - LHUMPRO
- Radiometrics - MP3000-A
- Radiometrics - MP3014
- Radiometrics - MP2500
- Radiometrics - MP1500

#### **Radar Wind Profiler**

- Scintec A.G. - Lap 3000 RASS

#### **Other**

- CIMEL CE-370
- Léosphère RMAN-510
- Raymetrics (LR111-D300)

#### **IOP - Intense Observation Period**

**IRT** - Infrared Radiometer Brightness Temperatures

**IWV** - Integrated Water Vapour

## **J**

**JSON** - Java Script Object Notation is a simple format for exchanging data. It is easy for people to read and write, and easy for machines to generate and analyze its syntax. It is based on a subset of the JavaScript Programming Language.

## **K**

## **L**

**L1 data** - Observed data

**L2 data** - Retrieval data

**L3 data** - Homogenized data

**LIDAR** - Lidar is a method for determining ranges (variable distance) by targeting an object or a surface with a laser and measuring the time for the reflected light to return to the receiver. It has terrestrial, airborne, and mobile applications. Lidar is an acronym of "light detection and ranging" or "laser imaging, detection, and ranging".

**LETKF** - Local Ensemble Transform Kalman Filter

**LDR - Lidar Doppler Radar**

**LLJ** - Low Level Jet

**LWP** - Liquid Water Path

## **M**

**MWR** - Micro Wave Radiometer

**MET** - Meteorological sensor data

**MINI - MPL** - Mini Micro Pulse LiDAR

**MLH** - Mixing Layer Height

## **N**

**NetCDF** - Network Common Data Form is a set of software libraries and machine-independent data formats that support the creation, access, and sharing of array-oriented scientific data. It is also a community standard for sharing scientific data.

**NMS** - National Meteorological Service

**NMHSs** National Meteorological and Hydrological Services

**NWP** - Numerical Weather Prediction

**NWPM** - Numerical Weather Prediction Model

## **O**

**O-B** - Observed minus Background (usually a numerical model)

**Obs** - Observations

**OPERA** - Operational Programme for the Exchange of Weather Radar Information

## **P**

**PI** - Principal Investigator

**PM10** Particulate Matter under 10  $\mu\text{g}/\text{m}^3$

**PM2.5** Particulate Matter under 2.5  $\mu\text{g}/\text{m}^3$

**PPI scan** - Plan Position Indicator when scanning in PPI mode, the radar holds its elevation angle constant but varies its azimuth angle

**PSD** - Particle Size Distribution

## Q

**QRMS** - Quarterly Royal Meteorological Society

## R

**R&D** - Research and Development

**RAD** - Radiation

**RH** - Relative Humidity

**RI** - Refractive Index

**RMS** - Root Mean Square Error

**RS** - Remote Sensing

**RWP** - Radar Wind Profilers

## S

**SAT** - Systematic Approach to Training

**SCC** - The EARLINET Single Calculus Chain (SCC) is a tool for the automatic analysis of aerosol lidar measurements. The development of this tool started in the framework of EARLINET-ASOS (European Aerosol Research Lidar Network – Advanced Sustainable Observation System), it was extended and still on going under the ACTRIS (Aerosol, Clouds and Trace gases Research InfraStructure Network) umbrella. The SCC is a major component of the ACTRIS Aerosol Remote Sensing Node (ARES) responsible for the curation and the processing of the ACTRIS aerosol remote sensing data.

**SEVIRI** - Spinning Enhanced Visible and Infrared Imager

**SNR** - Signal Noise Ratio

**SOA** - Secondary Organic Aerosol

**SOP** - Standard Operation Procedure (NOT a Special Observing Period)

**SSA** - Single-Scattering Albedo

**STD** - Standard Deviation

## T

**T2m** - Temperature at 2 meter

**Td2m** - Dew Temperature at 2 meter



**TKE** - Turbulent Kinetic Energy

**TMP** - Temperature

**TOPROF** - Is a COST (ES1303) Action Towards operational ground based profiling with ceilometers, doppler lidars and microwave radiometers for improving weather forecasts. Period: 22 October 2013 - 21 October 2017. Chair: Anthony ILLINGWORTH

**TROPOe** - Tropospheric Remotely Observed Profiling via Optimal Estimation

## U

**UAV** - Unmanned Aerial Vehicle

**UAS** - Unmanned Aircraft System

**UTC** - Universal Time Coordinated

**UV LIDAR** - Ultra Violet LIDAR

## V

**VAA wind** - ???

**VAD wind** - Velocity Azimuth Display

**VDRMS** - Vector Difference RMS

**vs.** versus, comparison

**VVP wind** - Volume Velocity Processing

**VWP** Velocity Wind Profile

## Y

## W

**WIGOS** - WMO Integrated Global Observing System (WIGOS). The WMO Integrated Global Observing System (WIGOS) is one of WMO's top priorities as the new overarching framework for all WMO observing systems. Current global challenges demand a significant worldwide upgrade of space- and surface-based observations and predictions. In response, WIGOS provides a new, integrated approach incorporating the most recent scientific and technical advances. The WIGOS framework promotes network integration and partnership outreach, and engages the regional and national actors essential for successful integration of these systems. These national and international WIGOS partnerships allow WMO Members to:

- build observing capabilities
- achieve better national, regional and global coverage
- improve economic efficiency.

WIGOS is enhancing our understanding of the Earth System by supporting improved weather and climate products and services, and providing significantly more, improved observations.

**WMO** - World Meteorological Organization

**WD** - Wind Direction

**WP** - Wind Profiler or Work Package or Work Plan

**WS** - Wind Speed

**X**

**Z**