

## Acronyms and abbreviations

3DVAR	Three-Dimensional VARiational data assimilation
4DVAR	Four-Dimensional VARiational data assimilation
AC	Anomaly Correlation
AGCM	Atmospheric General Circulation Model
AGL	Above Ground Level
ALADIN	European NWP project
AOGCM	Atmosphere-Ocean General Circulation Model
AR4	Assessment Report number 4
ARPEGE	Action de Recherche Petite Echelle Grande Echelle (Research Project on Small and Large Scales)
ARPS	Advanced Regional Prediction System
ARW	Advanced Research WRF model
ASL	Above Sea Level
BB-LB	Big-Brother–Little-Brother experiment
BS	Brier Score
BSS	Brier Skill Score
CAM	Community Atmospheric Model, of NCAR
CAPE	Convective Available Potential Energy
CCA	Canonical Correlation Analysis
CCM	Community Climate Model, of NCAR
CCN	Cloud Condensation Nucleus
CCSM	Community Climate System Model
CFD	Computational Fluid Dynamics
CFL	Courant–Friedrichs–Lewy numerical stability criterion, which requires that $U\Delta t/\Delta x \leq 1$
CFS	Climate Forecast System of the US NCEP
CIN	Convective INhibition
CMAP	CPC Merged Analysis of Precipitation
CMC	Canadian Meteorological Centre
CMIP	Climate Model Intercomparison Project
COAMPS	Coupled Ocean–Atmosphere Mesoscale Prediction System, of the US Navy
COLA	Center for Ocean–Land–Atmosphere studies, USA

CPC	Climate Prediction Center
CRMSE	Centered Root-Mean-Square Error
CSI	Critical Success Index
CSIRO	Commonwealth Scientific and Industrial Research Organisation, Australia
DCISL	Departure Cell-Integrated Semi-Lagrangian finite-volume method
DEMETER	Development of a European Multimodel Ensemble system for seasonal to inTERannual prediction
DMO	Direct Model Output
DNS	Direct Numerical Simulation
DSS	Decision Support System
ECHAM	Global climate model developed by the Max Planck Institute for meteorology
ECMWF	European Centre for Medium-range Weather Forecasts
ECPC	Experimental Climate Prediction Center, US Scripps Institution of Oceanography
EKF	Extended Kalman Filter
EL	Equilibrium Level
EML	Elevated Mixed Layer
EnKF	Ensemble Kalman Filter
ENSO	El Niño - Southern Oscillation
EOF	Empirical Orthogonal Function
ERA	ECMWF global reanalysis
EROS	Earth Resources Observing System, of the US Geological Survey
ESA	European Space Agency
ETKF	Ensemble Transform Kalman Filter
ETS	Equitable Threat Score
F	False-alarm rate
FAR	False-Alarm Ratio
FASTEX	Fronts and Atlantic Storm Tracks EXperiment
FDDA	Four-Dimensional Data Assimilation
FFSL	Flux-Form Semi-Lagrangian finite-volume method
FIM	Flow-following finite-volume Icosahedral Model, of the US NOAA
GABLS	Global Energy and Water-cycle EXperiment (GEWEX) Atmospheric Boundary-Layer Study
GCM	General Circulation Model
GEM	Global Environmental Multiscale model of the Meteorological Service of Canada
GEOS	Goddard Earth Observing System, of NASA
GFS	Global Forecasting System, of the US NCEP
GLDAS	Global Land Data Assimilation System, of the US NOAA and NASA
GME	Global model of the German Weather Service

GOES	Geostationary Operational Environmental Satellite
GPI	GOES Precipitation Index
GPS	Global Positioning System
GSS	Gilbert Skill Score
H	Hit rate
HIRLAM	High-Resolution Limited Area Model
HRLDAS	High-Resolution Land Data Assimilation System, part of the WRF system
HSS	Heidke Skill Score
IC	Initial Conditions
IN	Ice Nucleus
IPCC	Intergovernmental Panel on Climate Change
IRI	International Research Institute for Climate and Society
KE	Kinetic Energy
KF	Kalman Filter
LAM	Limited-Area Model
LBC	Lateral-Boundary Condition
LCL	Lifting Condensation Level
LDAS	Land Data-Assimilation System
LES	Large-Eddy Simulation
LFC	Level of Free Convection
LM	Lokal Modell, of the German Weather Service
LSM	Land-Surface Model
MADS	Model-Assimilated Data Set
MAE	Mean Absolute Error
ME	Mean Error
MERRA	Modern Era Retrospective-analysis for Research and Applications, of NASA
MET	Model Evaluation Toolkit
MICE	Modeling the Impact of Climate Extremes
MM4	Penn State University–NCAR Mesoscale Model Version 4
MODIS	MODerate-resolution Imaging Spectroradiometer
MOS	Model Output Statistics
MRF	Medium-Range Forecast model, of the US NWS
MSC	Meteorological Service of Canada
MSE	Mean-Square Error
NAM	North American mesoscale Model, of the US NCEP
NAO	North Atlantic Oscillation
NARR	North American Regional Reanalysis
NASA	National Aeronautics and Space Administration, of the USA
NCAR	National Center for Atmospheric Research, of the USA
NCDC	National Climatic Data Center, of NOAA

NCEP	National Centers for Environmental Prediction, of NOAA
NESDIS	National Environmental Satellite, Data, and Information Service, of NOAA
NetCDF	Network Common Data Format
NMC	National Meteorological Center, predecessor of NCEP
NNMI	Nonlinear Normal-Mode Initialization
NNRP	NCEP-NCAR Reanalysis Project
NOAA	National Oceanic and Atmospheric Administration, of the USA
NOGAPS	Navy Operational Global Atmospheric Prediction System, of the USA
NSIP	NASA Seasonal-Interannual Prediction Project
NWP	Numerical Weather Prediction
NWS	National Weather Service, of the USA
OI	Optimal Interpolation
OLAM	Ocean–Land–Atmosphere Model
OLR	Outgoing Longwave Radiation
OMEGA	Operational Multiscale Environment Model with Grid Adaptivity
OSE	Observing-System Experiment, Observation Sensitivity Experiment
OSSE	Observing-System Simulation Experiment
PC	Proportion Correct
PCA	Principal Component Analysis
PCMDI	Program for Climate Model Diagnosis and Intercomparison
PDF	Probability Distribution (or Density) Function
PILPS	Project for Intercomparison of Land-surface Parameterization Schemes
POD	Probability Of Detection
PP	Perfect-Prognosis
PRUDENCE	Prediction of Regional scenarios and Uncertainties for Defining European Climate change risks and Effects
PV	Potential Vorticity
QA	Quality Assurance
QC	Quality Control
QPF	Quantitative Precipitation Forecast
RAMS	Regional Atmospheric Modeling System, of Colorado State University
RANS	Reynolds-Averaged Navier–Stokes equations
RASS	Radio Acoustic Sounding System
RCM	Regional Climate Model
RFE	Regional Finite Element model, of Canada
RH	Relative Humidity
RMS	Root-Mean-Square, error or difference
RMSE	Root-Mean-Square Error
ROC	Relative Operating Characteristic
RPS	Rank Probability Score

RPSS	Rank Probability Skill Score
RSM	Regional Spectral Model, of NCEP
RTG	Real-Time Global analysis, of the Marine Modeling and Analysis Branch of NCEP
RUC	Rapid Update Cycle model, of the US NCEP
RUC-2	RUC, version 2
SC	Successive Correction
SCIPUFF	Second-order Closure Integrated PUFF model
SEVIRI	Spinning Enhanced Visible and InfraRed Imager
SFS	SubFilter Scale
SGMIP	Stretched-Grid Model Intercomparison Project
SL	Starting Level
SLP	Sea-Level Pressure
SNOTEL	SNOW TELEmetry
SOM	Self-Organizing Map
SREF	Short-Range Ensemble Forecasting
SS	Skill Score
SSM/I	Special Sensor Microwave Imager
SST	Sea-Surface Temperature
STARDEX	STATistical and Regional dynamical Downscaling of EXtremes
STATSGO	State Soil Geographic data base
SVD	Singular Value Decomposition
TKE	Turbulent Kinetic Energy
TOMS	Total Ozone Mapping Spectrometer
TRMM	Tropical Rainfall Measurement Mission satellite
TS	Threat Score
UCM	Urban Canopy Model
UKMO	United Kingdom Meteorological Office
UMOS	Updatable MOS
WRF	Weather Research and Forecasting model
WSR-88D	Weather Service Radar, 1988, Doppler