

# Joint Working Group in Forecast Verification Research

<https://community.wmo.int/jwgfvr-verification>



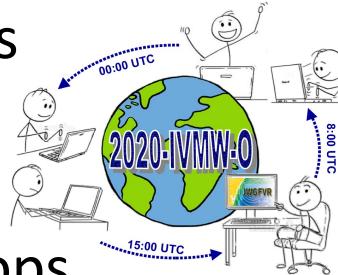
The Joint Working Group on Forecast Verification Research (JWGFVR) is a group of verification experts joint between the World Meteorological Organization's (WMO) World Weather Research Programme (WWRP) and the Working Group for Numerical Experimentation (WGNE).

## Promote good verification practices :

- Verification tutorials
- Verification web-page
- WMO recommendation reports and standards for operational centers
- Verification software

## Advance verification research:

- Verification method intercomparisons
- International verification method workshops
- Verification challenges
- Special issues and publications



## Support verification activities in the other WWRP/WMO projects and Working Groups



# How did this start-up? A group of colleagues and friends ...



## Sydney 2000 FDP

Beth Ebert (BoM), Barb Brown (NCAR)  
Laurie Wilson (ECCC), Pertti Nurmi (FMI),  
Anna Ghelli (ECMWF), Martin Goeber  
(DWD), Caio Coelho (CPTEC/INPE),  
Barbara Casati (ECCC), Manfred Dorninger  
(UWien), Thomas Haiden (ECMWF), Eric  
Gilleland (NCAR), Chiara Marsigli (DWD),  
Marion Mittermaier (UK MetOffice), ...





# Verification Workshops

- 30 July – 1 Aug **2002, Boulder**: “Making Verification More Meaningful” (Barb Brown).
- 15-17 Sept **2004, Montreal**: 2<sup>nd</sup> International Verification Workshop (Laurie Wilson)
- 31 Jan – 2 Feb **2007, Reading**: 3<sup>rd</sup> International Verification Workshop & Tutorials (Anna Ghelli)  
<https://www.ecmwf.int/en/learning/workshops-and-seminars/past-workshops/2007-international-verification-methods>

Ebert and Ghelli (2008) ed. Met Apps Special Issue;  
Casati et al (2008) review article
- 4 -10 June **2009, Helsinki**: 4<sup>th</sup> International Verification Workshop & Tutorials (Pertti Nurmi)  
<https://space.fmi.fi/Verification2009/>
- 1-7 Dec **2011, Melbourne**: 5<sup>th</sup> International Verification Workshop & Tutorials (Beth Ebert)  
Ebert et al (2013) review article
- 13-19 March **2014, New Delhi**: 6<sup>th</sup> International Verification Workshop & Tutorials (Raghu Ashrit)
- 3-11 May **2017, Berlin**: 7<sup>th</sup> International Verification Workshop & Tutorials (Martin Goeber)  
<https://www.7thverificationworkshop.de>

Dorninger et al (2018) ed. Met Zet special issue;  
Dorninger et al (2020) ed. Met Apps special issue.
- 9-20 November **2020, 8<sup>th</sup> International Verification Method Workshop** (Barbara Casati/Manfred Dorninger)  
<https://jwgfvr.univie.ac.at>

Casati et al (2021) BAMS workshop summary (submitted)



# Spatial verification methods Inter-Comparisons

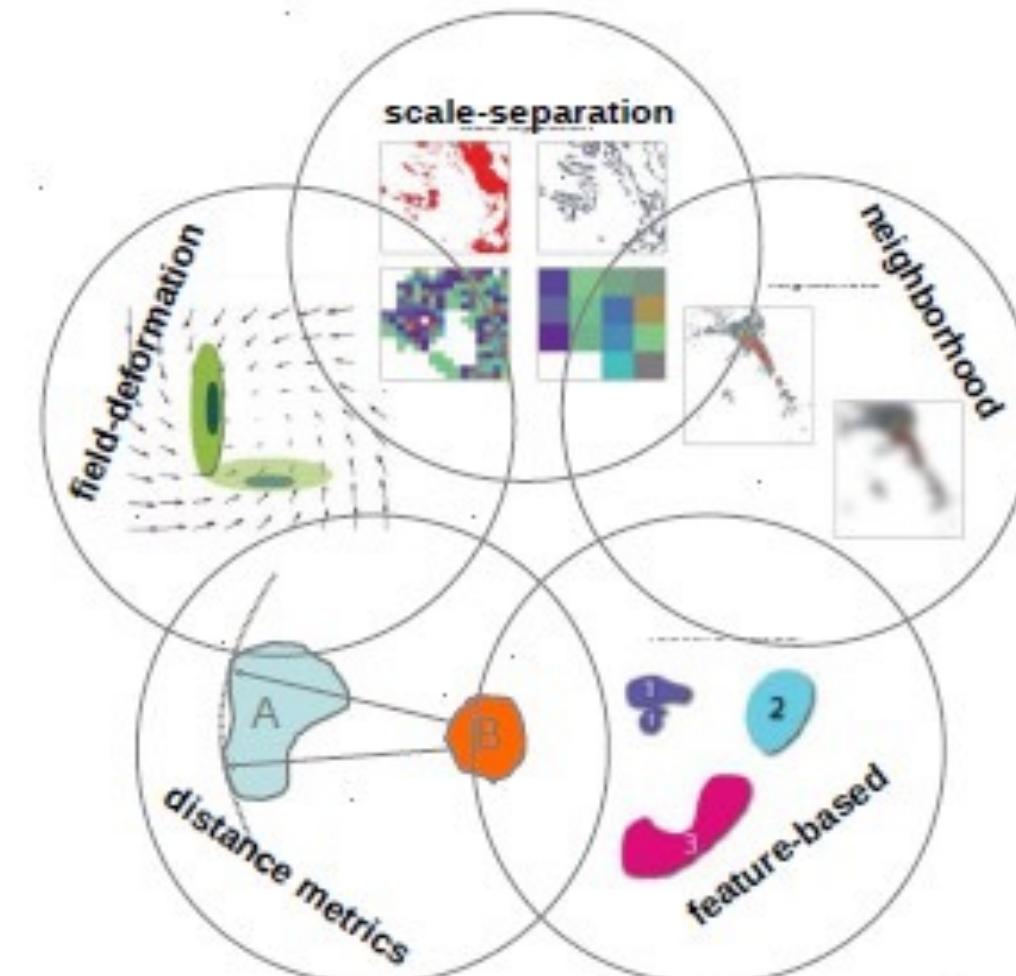
- Spatial Verification Inter-Comparison Project (ICP)  
Gilleland et al (2010), BAMS
- Mesoscale Verification  
Intercomparison in complex Terrain (MesoVICT)  
Dorninger et al (2018), BAMS

<http://www.ral.ucar.edu/projects/icp>

Includes an impressive list of references,  
more than 200 peer-review articles.

Open source community verification tools:  
R spatialVx package, MET and METplus

Analyse the behaviour and classify the spatial methods: provide guidance

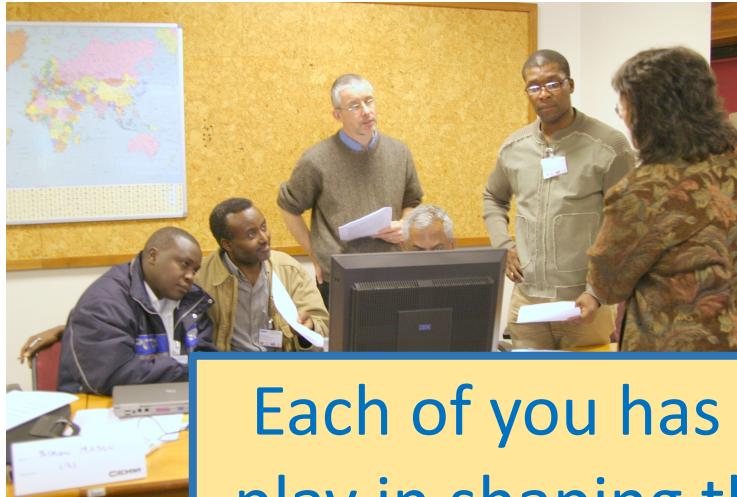




# The Future

## Challenges and new directions:

- The increasing complexity of the Earth System Models
- Observation uncertainty and representativeness
- New observations : crowd sourcing, drones, 3d satellites, ...
- User-tailored verification
- Artificial Intelligence & Machine Learning



Each of you has a role to play in shaping the future of verification research!

