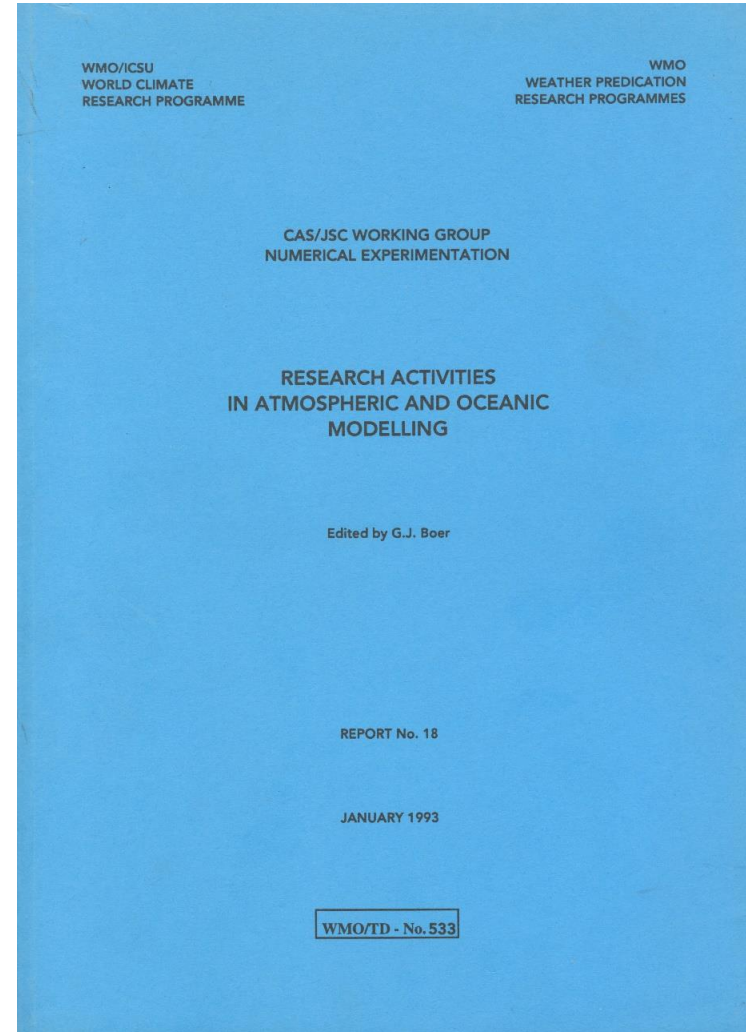


WGNE Blue Book

Elena Astakhova
Hydrometcenter of Russia



WGNE 38, November 27 – December 1, 2023



Pieces of History

1967 WGNE (Working Group on Numerical Experimentation) established by JOC for GARP

1985 First Session of WGNE, re-established for WCRP JSC and CAS, Boulder



André Robert

1970-1976 WGNE member

1971-1973 WGNE chair

1972-1977 Editor, Research Activities in Atmospheric and Oceanic Modelling, WMO

List of editors:

1977-1978 Richard Asselin

1979-1984 Ian D. Rutherford

1984-1995 George Boer

1996-1998 Andrew Staniforth

1999-2002 Harold Ritchie

2003-2010 Jean Côté

2011-2014 Ayrton Zadra



Environment
Canada

Environnement
Canada

Research Activities in Atmospheric and Oceanic Modelling

was the annual publication prepared under the auspice of WGNE and published by WMO since 1972

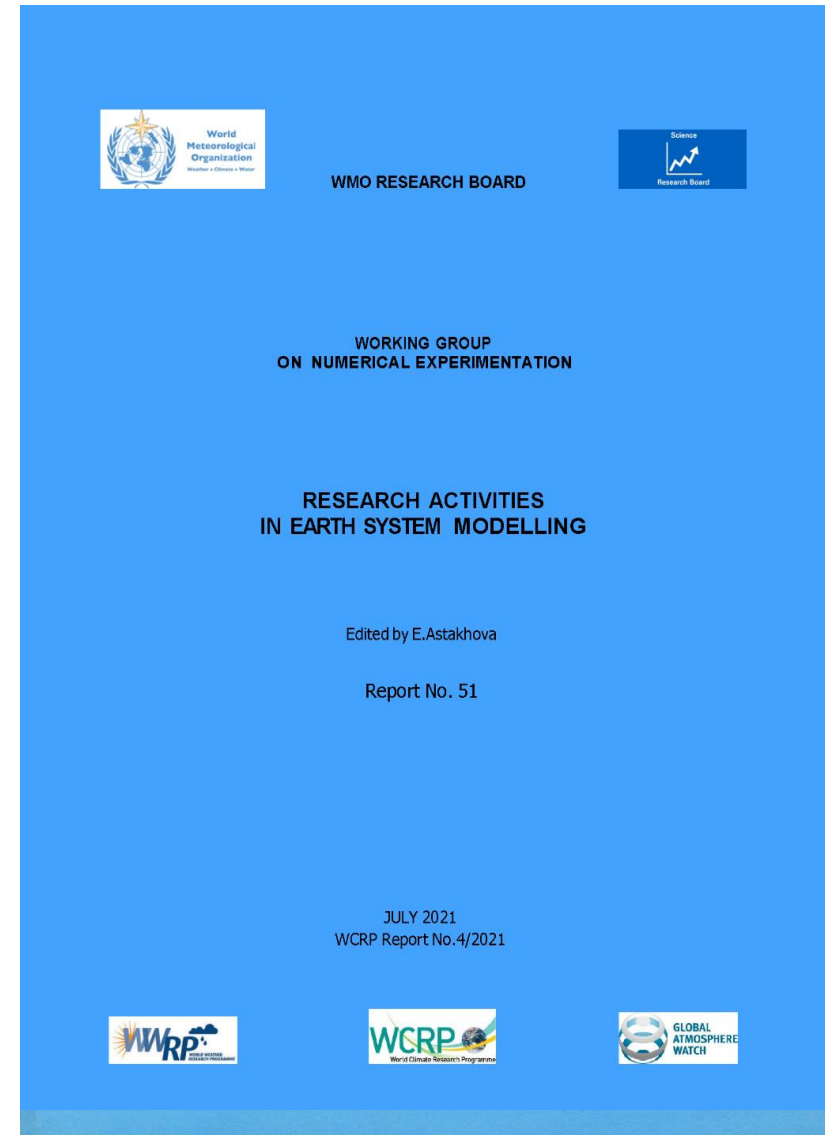
WGNE Blue book is a nickname

that comes from its originally blue cover

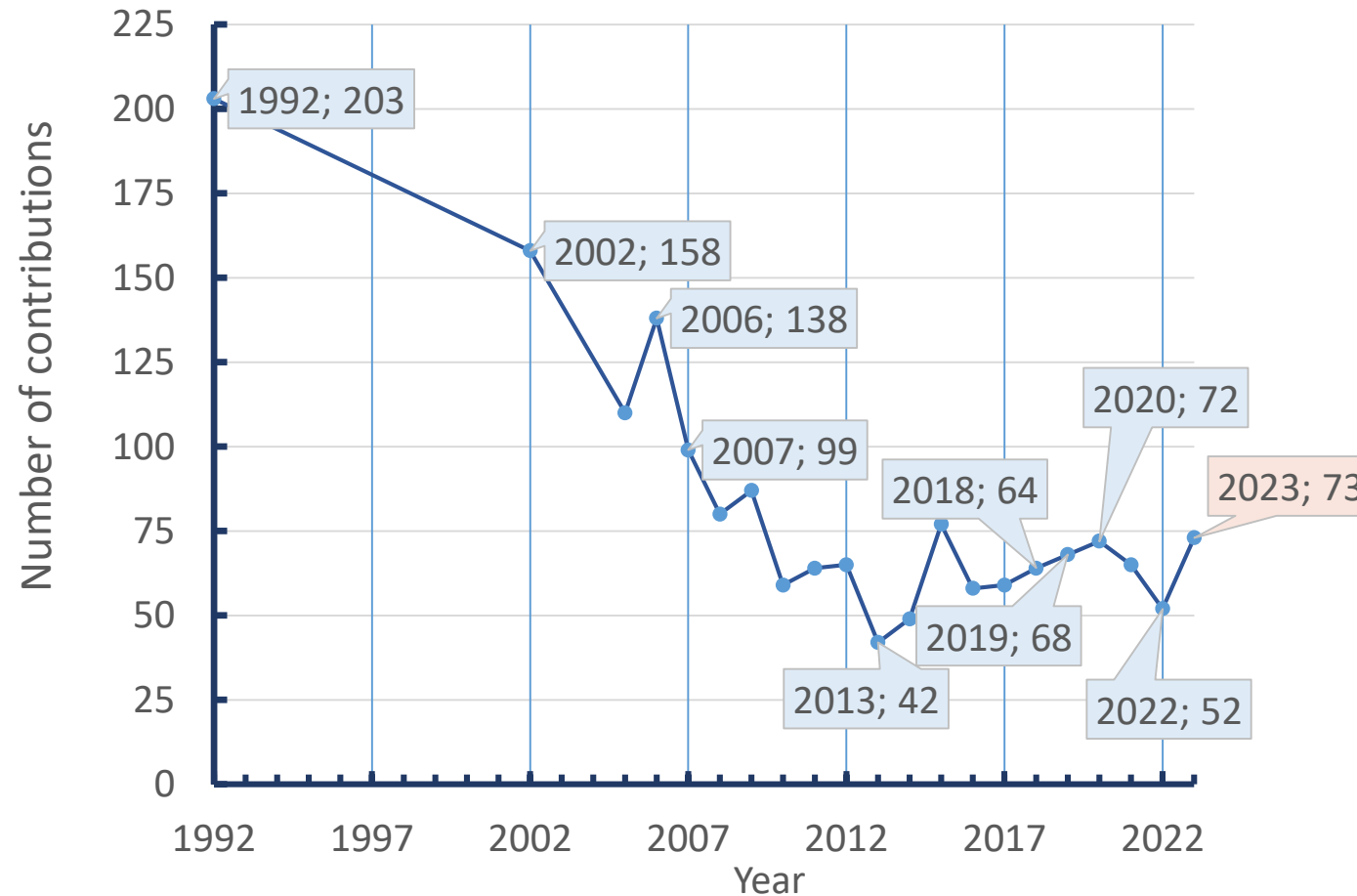
Only electronic version since 2006

In 2020 the title was changed to

Research Activities in Earth System Modelling

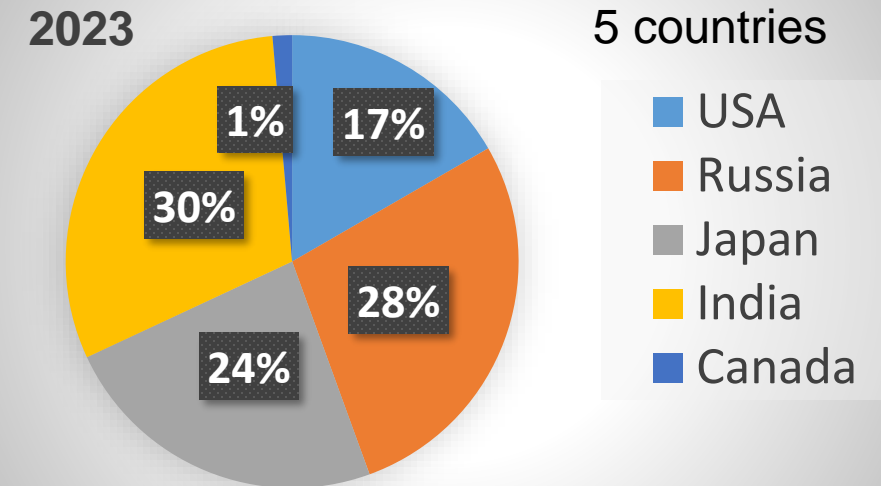
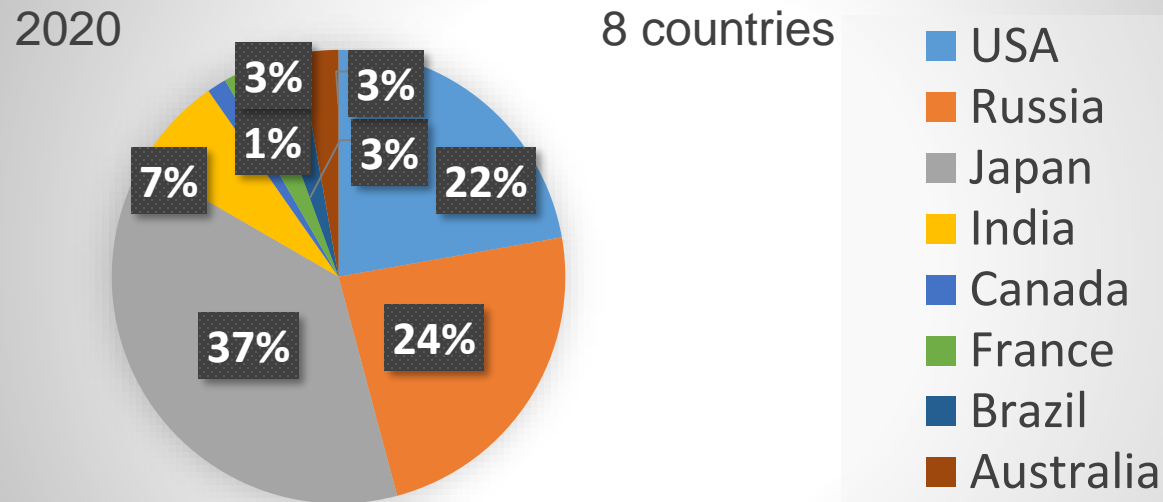
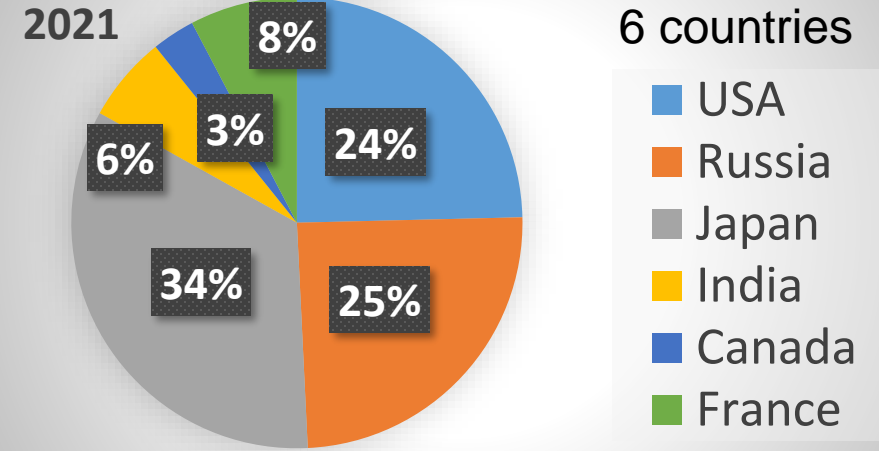
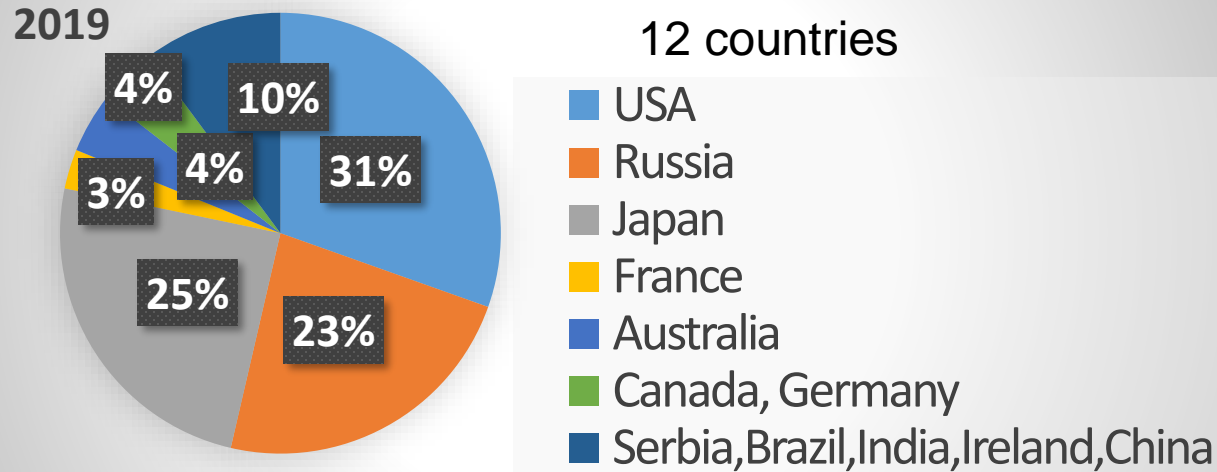


Evolution of the number of contributions



About 60-70 contributions in the last years

Contributing countries



- Number of contributing countries decreases
- The percentage of papers from the “basic” contributing countries (Japan, USA, Russia) is rather stable

Distribution of papers over sections (2018-2023)

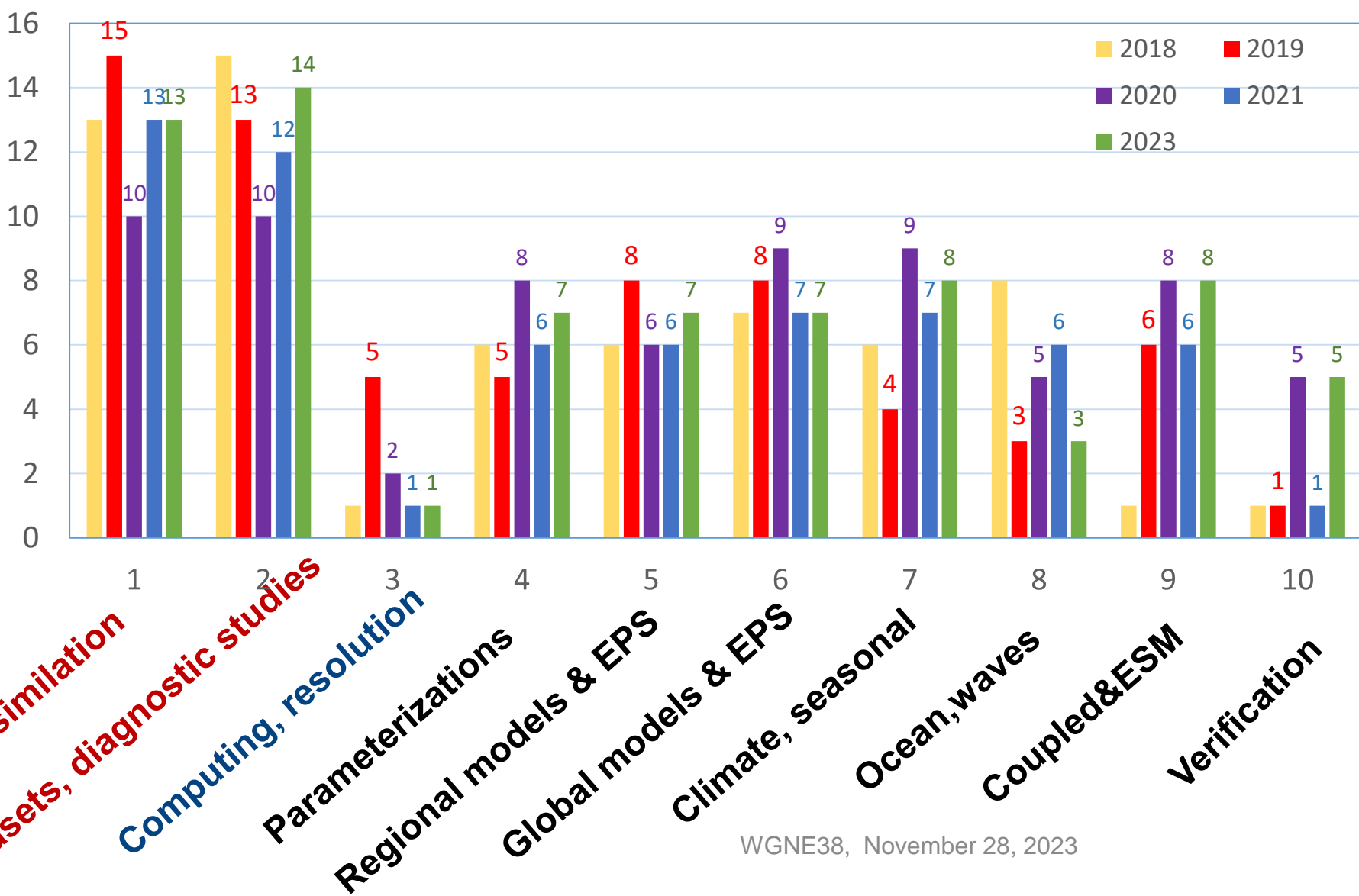
Total:

2018: 64

2019: 68

2020: 72

2023: 73



- Least populated are sections on computing and resolution
- Most populated are sections on data assimilation and diagnostic
- Positive trend for Coupled&ESM

This year in the WGNE Blue book:

➤ Verification

B.Casati, C. Lussana, A. Crespi

Scale-separation diagnostics and the Symmetric Bounded Efficiency for the inter-comparison of gridded products with different spatial resolutions

Precipitation reanalyses with different spatial resolutions (6, 31, 62 km) were compared. 24-hour accumulated precipitation fields were decomposed into the sum of components on different spatial scales by using a 2D Haar wavelet filter. The separate scale components were then compared by using the continuous verification statistics.

3 papers on MetPlus

T.Jensen et al	METplus Verification and Diagnostics Framework for Model Evaluation Across Scales
C. Kalb et al	Advances in METplus Verification for Subseasonal to Seasonal Model Evaluation
A.Kirsanov et al	Using METplus for verification of COSMO-Ru/ICON modelling system

Many thanks to Barbara and JWGFVR



This year in the WGNE Blue book:

- A lot of papers from India (22) , in 6 sections (out of 10)

Most papers on data assimilation and data&diagnostics.

S. I. Rani, J. P. George. IMDAA high resolution regional reanalysis for the Indian monsoon region

Description of operational and research forecast systems:

A. Jayakumar et al Operational Convective-Scale Numerical weather prediction model and high resolution city scale model at NCMRWF

S.Kumar et al Development of a High-Resolution Global Forecast System Model with a Triangular Cubic Octahedral Grid

Reduced Gaussian grid -> TCO grid, GFS T1534 TCO tests

This year in the WGNE Blue book:

➤ Description of upgrades of operational systems in Japan

K.Nonaka. Operational **use of Dual-Metop AMVs at high latitudes** in JMA's global NWP system

H.Shimizu. Operational **use of hyper spectral infrared sounder radiance data** in JMA's meso-scale NWP system

R.Toguchi, T.Iriguchi. Operational **Use of Surface Humidity Observations** in JMA's Mesoscale NWP Systems

Y.Yamasaki, H.Kusabiraki. Improving the **representation of topographic effects** in JMA's regional NWP model

H.Kawada, T.Kakehata, K.Kawano Implementation of the **SPPT scheme** in JMA's Mesoscale Ensemble Prediction System

H.Yonehara et al. Upgrade of JMA's Operational Global Numerical Weather Prediction System

Y. Ota et al. Upgrade of JMA's Global Ensemble Prediction System

M.Hirabara, H.Asai, N.Usui Improvement in JMA's Ocean Data Assimilation and Prediction System for the Seas Around Japan (JPN system)

This year in the WGNE Blue book:

➤ USA

- **Contributed mostly to data assimilation and verification section.**

X. Liu et al. Ocean Color Data Assimilation and Coupled Ocean Physical-biogeochemical Reanalysis Efforts at NOAA/NCEP

- **UFS development**

R. Sun et al Thompson Microphysics Updates in the Unified Forecast System

A. Cheng, F. Yang, S. Moorthi. Aerosol Indirect Effects in UFS from Global Cloud Permitting Simulations

- **Development of other systems**

J.R. Carley et al. On the Development of NOAA's Rapid Refresh Forecast System

This year in the WGNE Blue book:

➤ Russia

- Contributed mostly to data sets, diagnostic investigations and climate studies
- Many contributions related to polar regions of Russia

V.Malakhova, I.Mokhov, M. Arzhanov. Model estimates of the process of complete permafrost degradation under warming in the region of the Yamal Peninsula

A.Narizhnaya, A.Chernokulsky, D. Handorf. Cold air outbreaks in the Barents Sea: dependence on sea-ice based on ECHAM6 model simulations

- **Short description of activities in climate modelling at the Marchuk Institute of Numerical Mathematics**
(E.Volodin)
- **Description of the Complex System of the Wind Waves Forecasting in the World Ocean and the Seas of Russia**
(A. Zelenko, Yu. Resnyanskii, Hydrometcenter of Russia)

Cons and pros of the Blue Book

- Not peer-reviewed
 - No DOI
 - Not indexed in WoS&Scopus
 - Few countries contribute, not all trends are covered
- Fast interchange of information
 - Possibility to present short information about on-going research and operational technologies
 - Advertisement of a published paper
 - Possibility to publish (and to learn about) technical details
 - Own publication of WGNE – can easily change format, scope, etc

Does Blue book has a future ?

I want to thank

- the WGNE members (mainly Fanglin and Masashi) for their permanent support
- Mary Hart for proofreading the NCEP contributions to the WGNE Blue Book
- Everybody for their attention!

