WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

WMO OMM
World Meteorological Organization
Organisation météorologique mondiale
Organización Meteorológica Mundial
Всемирная метеорологическая организация
المنظمة العالمية للأرصاد الجوية
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Anexos: 2 (disponibles en inglés solamente)

Asunto: Informe anual de la Organización Meteorológica Mundial sobre los progresos técnicos del Sistema Mundial de Proceso de Datos y de Predicción y las actividades de investigación conexas en materia de predicción numérica del tiempo correspondiente a 2020

Finalidad: Presentar su contribución al informe mencionado **preferiblemente antes del 31 de agosto de 2021**

Estimado señor/Estimada señora:

El Informe anual de la Organización Meteorológica Mundial (OMM) sobre los progresos técnicos del Sistema Mundial de Proceso de Datos y de Predicción (SMPDP), junto con el Informe sobre las actividades de investigación conexas en materia de predicción numérica del tiempo (PNT), en adelante "el Informe", permite mantener informados a los Miembros sobre la situación de las instalaciones, las investigaciones y las aplicaciones que se van creando o poniendo en marcha en los centros del SMPDP, y cuya rápida transformación obedece a los avances tecnológicos y la evolución de las necesidades. El informe tiene por objeto informar a los expertos operacionales y a los investigadores sobre lo siguiente: 1) la instalación y actualización de equipo operacional y medios conexos en los centros del SMPDP y, en particular, de sistemas de análisis y predicción del tiempo, sistemas de PNT y sus sistemas especializados para aplicaciones concretas; y 2) las actividades de investigación y desarrollo concebidas para comprender los procesos meteorológicos, y la evolución constante de los modelos numéricos y de las técnicas para facilitar la predicción operativa. Además, el hecho de examinar exhaustivamente todos los informes recibidos contribuye sobremanera a que la OMM esté en condiciones de entender el funcionamiento del SMPDP a escala mundial, regional y nacional y pueda prestarle una atención constante.

En este contexto, me gustaría dar las gracias a los Miembros que han presentado los informes de 2019, junto con los de años anteriores (véase el anexo I), para su publicación en el sitio web de la OMM.

Se invita a los Miembros a que preparen sus contribuciones al informe del año 2020 y las presenten a la Secretaría de la OMM. A fin de facilitar la presentación de información pertinente sobre las actividades de su centro del SMPDP y/o sobre su colaboración en un consorcio en ámbitos que van desde la predicción inmediata hasta la previsión a largo plazo y de plazo ampliado, o en relación con aplicaciones especializadas de PNT y de proceso posterior de datos (por ejemplo, para las olas oceánicas, las mareas de tempestad, el hielo marino, el transporte y la desagregación de los contaminantes marinos, los ciclones tropicales, el transporte y la dispersión de los contaminantes atmosféricos, la radiación solar ultravioleta, el pronóstico de la calidad del aire, el humo, la arena y el polvo, etc.), se ha preparado una plantilla siguiendo el índice del informe (véase el anexo II), que puede consultarse en el sitio web de la OMM indicado con anterioridad.

A los: Representantes Permanentes de los Miembros ante la OMM
Sra. Florence Rabier, Directora General del Centro Europeo de Previsiones Meteorológicas a Plazo Medio (ECMWF)
Sr. Andre Kamga Foamouhoue, Director General del Centro Africano de Aplicaciones Meteorológicas para el Desarrollo (ACMAD).

Le agradecería que completase su contribución al informe de 2020, únicamente en formato electrónico, y la mandase a la Secretaría de la OMM **preferiblemente antes del 31 de agosto de 2021**, por correo electrónico (dpfsmail@wmo.int), de preferencia en MS Word u otros formatos compatibles.

Me gustaría informarle de que el contenido y el método de presentación del informe se revisarán para que los Miembros puedan presentar sus contribuciones al informe con mayor facilidad, así como para elaborar criterios de desempeño que permitan supervisar el funcionamiento de los centros del SMPDP. El Comité Permanente de Proceso de Datos para la Modelización y Predicción Aplicadas del Sistema Tierra (SC-ESMP), en colaboración con la Junta de Investigación y sus órganos subsidiarios pertinentes, llevará a cabo la citada revisión para dar cumplimiento a la solicitud formulada por el presidente de la Comisión de Observaciones, Infraestructura y Sistemas de Información (INFCOM) en la tercera parte de su primera reunión.

Quisiera expresarle mi agradecimiento por su continuo apoyo y contribución a este informe e instar encarecidamente a aquellos Miembros que aún no hayan aportado su contribución, o que no hayan actualizado sus informes respectivos desde hace varios años, a que lo hagan, en beneficio de todos los Miembros de la Organización.

Le saluda atentamente.

Dr. Wenjian Zhang
por el Secretario General

Annual WMO Technical Progress Reports on GDPFS and related Research Activities on NWP (for 2019, or latest report year)

ECMWF (2015)	Lithuania (2016)
Algeria (2018)	Libya (2018)
Argentina (2016)	Madagascar (2019)
Armenia (2018)	Malaysia (2017)
Australia (2010)	Mali (2019)
Austria (2019)	Montenegro (2008)
Belarus (2012)	Morocco (2017)
Belgium (2008)	Mozambique (2015)
Bolivia (2010)	Myanmar (2015)
Bosnia and Herzegovina (2019)	Netherlands (2019)
Botswana (2010)	New Zealand (2018)
Brazil (2016)	Oman (2015)
Bulgaria (2006)	Pakistan (2017)
Canada en - fr (2017)	Paraguay (2016)
Chile (2019)	Panama (2005)
China (2019)	Peru (2018)
Colombia (2019)	Philippines (2018)
Côte d'Ivoire (2004)	Poland (2019)
Croatia (2018)	Portugal (2011)
Cyprus (2015)	Qatar (2012)
Czech Republic (2016)	Republic of Korea (2019)
Denmark (2019)	Romania (2015)

Ecuador (2008)	Russian Federation (2018) Khabarovask en - ru Moscow en - ru Novosibirsk en - ru
Egypt (2019)	Saudi Arabia (2017)
Estonia (2008)	Serbia (2017)
Fiji (2010)	Singapore (2019)
Finland (2019)	Slovakia (2018)
France (2018)	Slovenia (2012)
Georgia (2004)	Spain (2019)
Germany (2019)	Sri Lanka (2018)
Greece (2013)	Sudan (2016)
Hong Kong, China (2019)	Sweden (2018)
Hungary (2019)	Switzerland (2019)
India (2011)	Thailand (2018)
Indonesia (2009)	Republic of North Macedonia (2010)
Ireland (2019)	Tunisia (2018)
Islamic Republic of Iran (2006)	Turkey (2019)
Israel (2012)	Ukraine (2018)
Italy (2019)	United Kingdom (2015)
Japan (2019)	United Republic of Tanzania (2018)
Kazakhstan (2018)	United States of America (2013)
Kenya (2016)	Uruguay (2008)
Kyrgyzstan (2004)	Uzbekistan (2015)
Latvia (2013)	

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JOINT WMO TECHNICAL PROGRESS REPORT ON THE GLOBAL DATA PROCESSING AND FORECASTING SYSTEM AND NUMERICAL WEATHER PREDICTION RESEARCH ACTIVITIES FOR 2020

"[Click here and type your country/centre name]"

1. Summary of highlights

"[Major changes in the data processing and forecasting system during the last year]"

2. Equipment in use

"[information on the major data processing units]"

3. Data and Products from GTS/WIS in use

- SYNOP-500 (please modify according to your situation)
- ……..
- ……..……

4. Forecasting system

4.1 System run schedule and forecast ranges

"[general structure of a prognostic system, models in operational use, run schedule, forecast ranges]"

4.2 Medium range forecasting system (4–10 days)

4.2.1 Data assimilation, objective analysis and initialization

4.2.1.1 In operation

"[information on Data assimilation, objective analysis and initialization]"

4.2.1.2 Research performed in this field

"[Summary of research and development efforts in the area]"

4.2.2 Model

4.2.2.1 In operation

"[Model in operational use, *(resolution, number of levels, time range, hydrostatic?, physics used)*] "

4.2.2.2 Research performed in this field

"[Summary of research and development efforts in the area]"

4.2.3 Operationally available Numerical Weather Prediction (NWP) Products

"[brief description of variables which are outputs from the model integration]"

4.2.4 Operational techniques for application of NWP products (MOS, PPM, KF, Expert Systems, etc.)

4.2.4.1 In operation

"[brief description of automated (formalized) procedures in use for interpretation of NWP ouput]"

4.2.4.2 Research performed in this field

"[Summary of research and development efforts in the area]"

4.2.5 Ensemble Prediction System (EPS)

4.2.5.1 In operation

(Describe also: time range, number of members and number of models used: their resolution, number of levels, main physics used, perturbation of physics, post-processing: calculation of indices,
clustering)"[Number of runs, initial state perturbation method, perturbation of physics?]"

4.2.5.2 Research performed in this field

"[Summary of research and development efforts in the area]"

4.2.5.3 Operationally available EPS Products

"[brief description of variables which are outputs from the EPS"

4.3 Short-range forecasting system (0–72 hrs)

4.3.1 Data assimilation, objective analysis and initialization

4.3.1.1 In operation

(Indicate boundary conditions
used)"[information on Data assimilation (*if any)*, objective analysis and initialization,]"

4.3.1.2 Research performed in this field

"[Summary of research and development efforts in the area]"

4.3.2 Model

4.3.2.1 In operation

"[Model in operational use, *(domain, resolution, number levels, range, hydrostatic?, physics used)*] "

4.3.2.2 Research performed in this field

"[Summary of research and development efforts in the area]"

4.3.3 Operationally available NWP products

"[brief description of variables which are outputs from the model integration]"

4.3.4 Operational techniques for application of NWP products

4.3.4.1 In operation

"[brief description of automated (formalized) procedures in use for interpretation of NWP ouput]" *(MOS, PPM, KF, Expert Systems, etc.)*

4.3.4.2 Research performed in this field

"[Summary of research and development efforts in the area]"

4.3.5 Ensemble Prediction System

4.3.5.1 In operation

(Describe also: time range, number of members and number of models used: their domain, resolution, number of levels, main physics used, for post-processing: calculation of indices, clustering)"[Number of runs, initial state perturbation method, perturbation of physics?]"

4.3.5.2 Research performed in this field

"[Summary of research and development efforts in the area]"

4.3.5.3 Operationally available EPS Products

"[brief description of variables which are outputs from the EPS"

4.4 Nowcasting and Very Short-range Forecasting Systems (0–12 hrs)

4.4.1 Nowcasting system

4.4.1.1 In operation

"[information on processes in operational use, as appropriate related to 4.4]"
(Note: please also complete the CBS/PWS questionnaire on Nowcasting Systems and Services, 2014)

4.4.1.2 Research performed in this field

"[Summary of research and development efforts in the area]"

4.4.2 Models for Very Short-range Forecasting Systems

4.4.2.1 In operation

"[information on models in operational use, as appropriate related to 4.4]"

4.4.2.2 Research performed in this field

"[Summary of research and development efforts in the area]"

4.5 Specialized numerical predictions

[Specialized NP on sea waves, storm surge, sea ice, marine pollution transport and weathering, tropical cyclones, air pollution transport and dispersion, solar ultraviolet (UV) radiation, air quality forecasting, smoke, sand and dust, etc.]

4.5.1 Assimilation of specific data, analysis and initialization (where applicable)

4.5.1.1 In operation

"[information on the major data processing steps, where applicable]"

4.5.1.2 Research performed in this field

"[Summary of research and development efforts in the area]"

4.5.2 Specific Models (as appropriate related to 4.5)

4.5.2.1 In operation

"[information on models in operational use, as appropriate related to 4.5]"

4.5.2.2 Research performed in this field

"[Summary of research and development efforts in the area]"

4.5.3 Specific products operationally available

"[brief description of variables which are outputs from the model integration]"

4.5.4 Operational techniques for application of specialized numerical prediction products (MOS, PPM, KF, Expert Systems, etc.) (as appropriate related to 4.5)

4.5.4.1 In operation

“[brief description of automated (formalized) procedures in use for interpretation of specialized NP output]”

4.5.4.2 Research performed in this field

"[Summary of research and development efforts in the area]"

4.5.5 Probabilistic predictions (where applicable)

4.5.5.1 In operation

“[Number of runs, initial state perturbation method, etc.]” *(Describe also: time range, number of members and number of models used: their resolution, main physics used, etc.)*

4.5.5.2 Research performed in this field

"[Summary of research and development efforts in the area]"

4.5.5.3 Operationally available probabilistic prediction products

“[brief description of variables which are outputs from probabilistic prediction techniques]”

4.6 Extended range forecasts (ERF) (10 days to 30 days)

4.6.1 In operation

"[information on Models and Ensemble System in operational use, as appropriate related to 4.6]"

4.6.2 Research performed in this field

"[Summary of research and development efforts in the area]"

4.6.3 Operationally available NWP model and EPS ERF products

"[brief description of variables which are outputs from the model integration]"

4.7 Long range forecasts (LRF) (30 days up to two years)

4.7.1 In operation

"[Describe: Models, Coupled? (1 tier, 2 tiers), Ensemble Systems, Methodology and Products]"

4.7.2 Research performed in this field

"[Summary of research and development efforts in the area]"

4.7.3 Operationally available EPS LRF products

"[brief description of variables which are outputs from the model integration]"

5. Verification of prognostic products

5.1 Annual verification summary

"[annual verification summary to be inserted here]"

5.2 Research performed in this field

"[Summary of research and development efforts in the area]"

6. Plans for the future (next 4 years)

6.1 Development of the GDPFS

6.1.1 Major changes in the operational DPFS which are expected in the next year

"[major changes in the Operational DPFS which are expected in the next year]"

6.1.2 Major changes in the operational DPFS which are envisaged within the next 4 years

"[major changes in the Operational DPFS which are envisaged within the next 4 years]"

6.2 Planned research Activities in NWP, Nowcasting, Long-range Forecasting and Specialized Numerical Predictions

“[Summary of planned research and development efforts in NWP, Nowcasting, LRF and Specialized Numerical Predictions for the next 4 years]”

6.2.1 Planned Research Activities in NWP

6.2.2 Planned Research Activities in Nowcasting

6.2.3 Planned Research Activities in Long-range Forecasting

6.2.4 Planned Research Activities in Specialized Numerical Predictions

7. Consortium (if appropriate)

7.1 System and/or Model

7.1.1 In operation

7.1.2 Research performed in this field

7.2 System run schedule and forecast ranges

7.3 List of countries participating in the Consortium

7.4 Data assimilation, objective analysis and initialization

7.4.1 In operation

7.4.2 Research performed in this field

7.5 Operationally available Numerical Weather Prediction (NWP) Products

7.6 Verification of prognostic products

7.7 Plans for the future (next 4 years)

7.7.1 Major changes in operations

7.7.2 Planned Research Activities

8. References

"[information on where more detailed descriptions of different components of the DPFS can be found]" (Indicate related Internet Websites also)

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