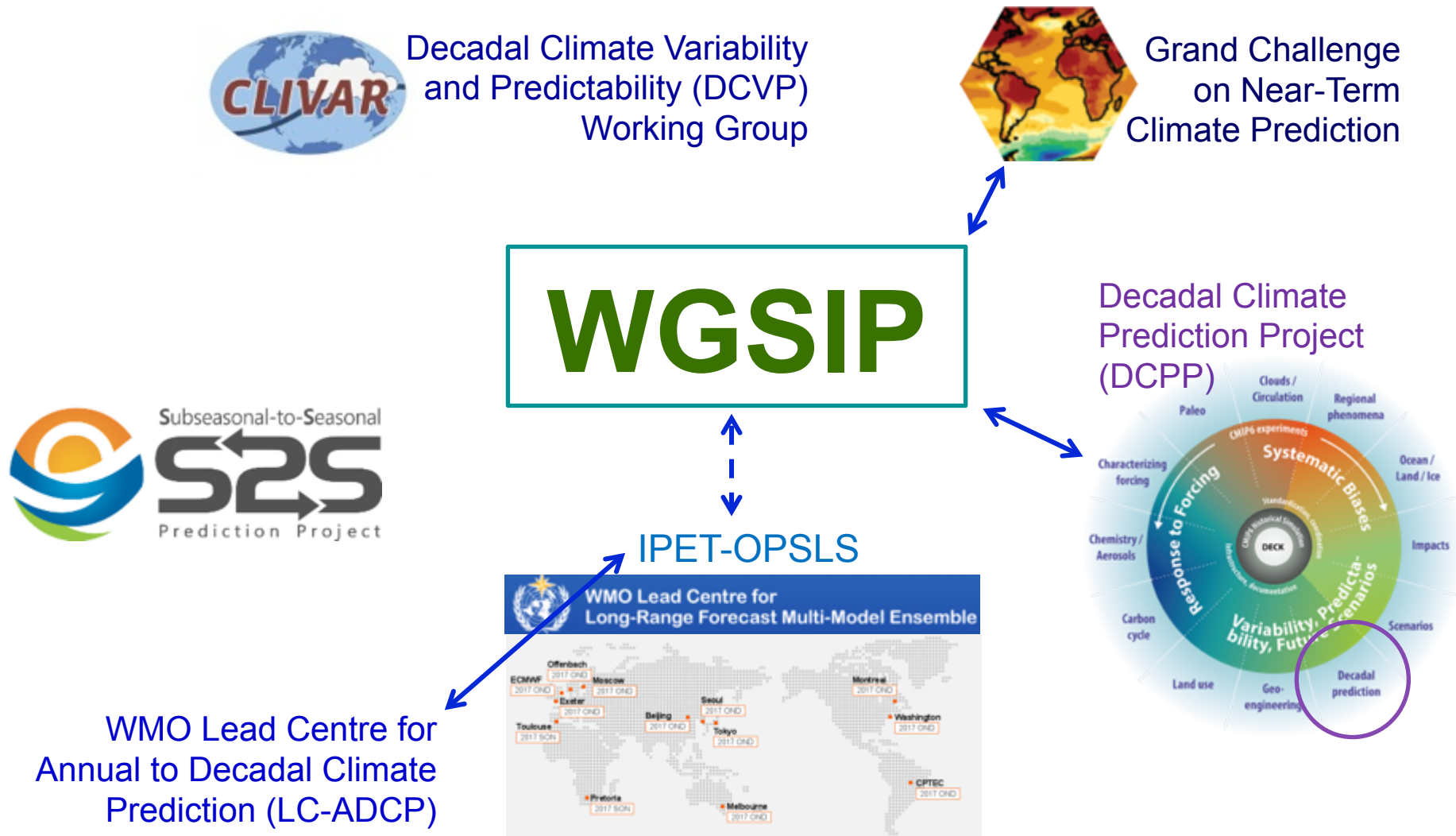


WGSIP update in response to outcomes of Pan-WCRP Modelling Meeting

Interactions and cross-membership



Outcomes of sub-meeting with ET-OPSLS co-chairs

- Meeting of opportunity with ET co-chairs, affiliated with S2S
- Aim was to further efforts to foster WGSIP-ET collaboration and cooperation (R2O, O2R)
- ET co-chairs circulated document before meeting describing R2O opportunities where WGSIP might contribute to enhancing GPC & LC forecast products and services and development of the operational forecasting infrastructure
- These spanned configuration of forecast systems, development of forecast and verification products (issues largely common across time scales)
- It was agreed that the operational and research communities would be well served by a ET and WGSIP authored review paper
 - (i) drawing on practices and experiences (many unpublished) from research and operational centres bearing on these issues, aimed toward setting out best practices and the state of the science and/or
 - (ii) setting out current exciting scientific challenges in climate prediction
- A focused workshop aligned with the next WMO Workshop on Operational Climate Prediction in May-June 2018 could facilitate this effort
- Some of these issues could be addressed through future WGSIP projects

Outcomes of sub-meeting with DCP, GC-NTCP, LC-ADCP

- Aims were updating current status of groups and ensuring their interacting and complementary roles are clearly defined and understood, e.g.
 - **DCP** defines CMIP experiments, hindcast and forecast protocols for LC
 - **LC** receives real-time and hindcast data from decadal GPCs in form prescribed by DCP, makes forecast information available to RCOFs and national met services
 - **GC** promotes advancement of decadal forecasting science, develops technical standards for LC products and verification, produces yearly Global Annual to Decadal Climate Update
- Mutual awareness improved, e.g. that DCP includes real time predictions so data will be available on ESGF as well as to WMO clients through LC
- Growing awareness of potential for decadal predictions to enable attribution of recent and near future changes to forced trends vs natural variability (C too, once ESMs in use), relevance to Global Stocktake
- Discussions continuing at DCP meeting

Identified collaborative research opportunities

- A repeated theme in WGSIP-involved discussions was the ripe opportunity to explore a **new class of tailored seasonal forecast products**
- Prediction of **occurrence of events** within a forecast period, rather than seasonal means of temperature, precipitation, etc.
 - threshold dates: monsoon onset, sea ice advance/retreat, growing season length, etc.
 - risks (probabilities) of extreme rain, temperatures etc within forecast period
- Examples of exploratory R&D encountered during meeting include
 - forecasts of prolonged cold spell risk for the energy industry (H. Thornton)
 - plume-based probabilistic forecasts of temperature exceeding harmful threshold, developed with and used by Australian sheep farmers (O. Alves)
- Requires **daily** hindcast/forecast data, which is becoming increasingly available through C3S, S2S, CHFP, NMME
- Developing **sector-relevant** and **understandable** products requires collaboration with users

WGSIP business


- WGSIP 20 tentatively in Spring 2019 (possibly in Moscow, aligned with climate prediction school)
- Anticipate side meeting(s) of opportunity between participating WGSIP members and other groups at Sep 2018 Boulder Conferences
- WGSIP SNOWGLACE and Teleconnections projects anticipate winding down by WGSIP 20 → ~2 new projects
- Proposed new project aiming to “close the gap” between research and operations supported by co-chairs
 - foci would be development of user-relevant products along lines of those on previous slide, providing in usable form
 - collaborative with WMO Expert Team and possibly other WCRP groups
 - concept for project will be developed via email and/or conference calls
- WGSIP intends generally to make its projects more collaborative across groups

WGSIP feedback on “Strategic Planning for the World Climate Research Programme”

- **Emphasis for the Next decade** After having successfully responded to the 2 questions posed 10-20 years ago (does climate change? YES. Are humans responsible? YES) what are the two new questions that will be focus for WCRP’s research in the next 10 years? (1 page with some discussion on the meaning and relevance of these 2 questions)
- **Cross-cutting Scientific Foci** that cover most of the planned research activities for WCRP in the next decade. (half a page description for each of them).
- **Imperatives** for the Programme required to reach WCRP’s objectives of scientific excellence high impacts and societal relevance (e.g., fundamental research, integration of disciplines, next generation Earth System Models, enhanced predictive skills across scales, support observational systems, data infrastructures and computing facilities, promote capacity building and a diverse research community, communicate scientific challenges and transfer research outcome, quantification of uncertainties, respond to societal needs and support services, partnerships, etc.)



Emphasis for the next decade

1. How predictable is multi-scale climate variability over seasonal to decadal time scales and how will it be influenced by human activities? 
2. How will the Earth system respond to socio-economic and environmental measures taken in support of international climate agreements?

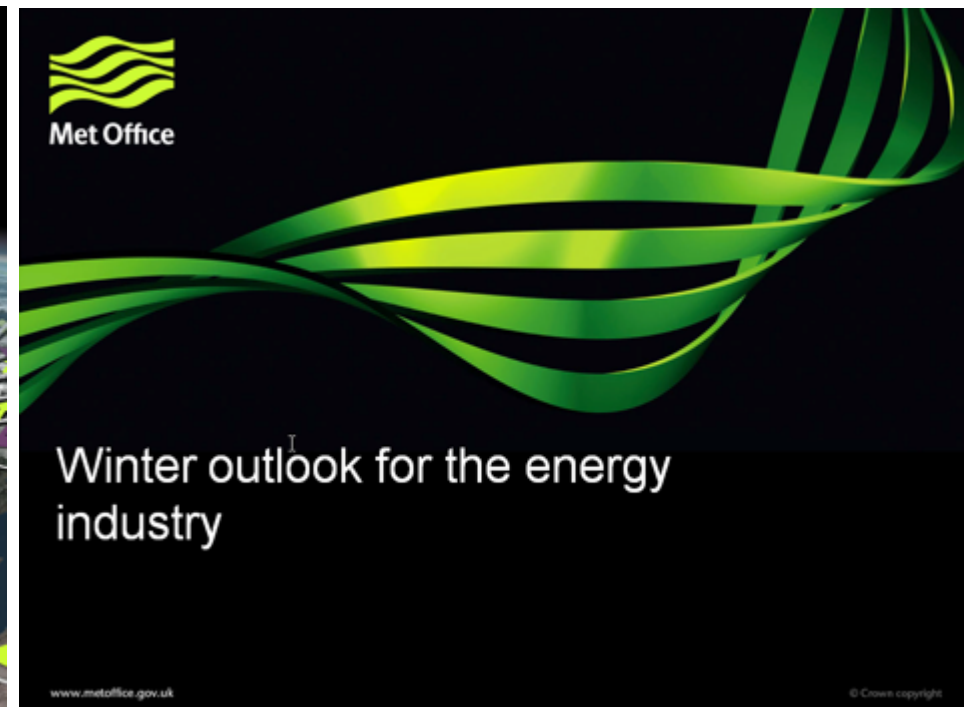
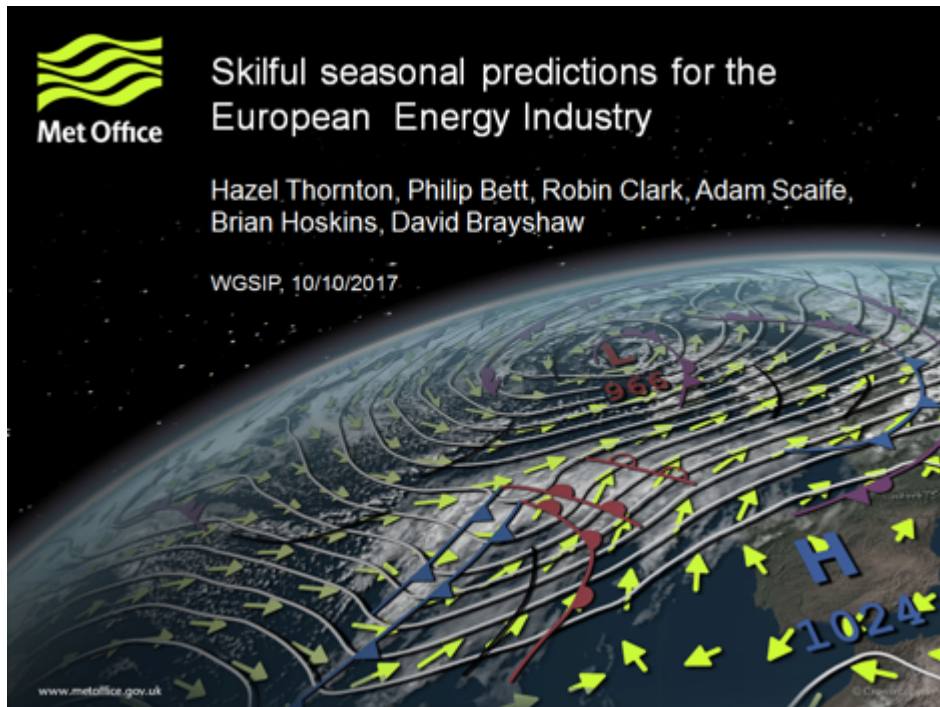
Cross cutting Scientific Foci

I

1. In which components of the Earth system will the greenhouse gases be transported following their release by human activities? (Where does the carbon go?)
2. Will atmospheric dynamical patterns, hydrological processes and biological productivity change in response to climate forcing, and will these processes accelerate or damp future climate change?
3. How will multi-scale physical, chemical and biological coupling mechanisms and feedbacks between the atmosphere, the ocean, the land and the cryosphere determine future climate change?
4. What is the influence of the middle and upper atmosphere on the climate system?
5. How will climate change affect weather including extreme meteorological and hydrological events (e.g., hurricane, droughts, flooding) in the future?
6. How will the global and regional earth's budgets of heat, energy and carbon evolve in the future?
7. How will climate change affect regional sea level, and how will it disturb coastal regions including coastal megacities?
8. How will climate change disturb climate sensitive regions such as the polar ice caps and tropical environments?
9. Which are the regions of the world that may become inhabitable as a result of climate change?

10. XXXXX ??





Contingency Planners Forecast

Met Office January-February-March



- In January the chance of prolonged spell of cold weather is similar to normal (i.e. no higher than the climatological risk)
- The probability of a prolonged spell of colder weather decreases later in the winter.
- Therefore, we consider the greatest risk of cold weather impacts, such as snow and ice, to be in January.
- Spells of windy weather slightly higher than normal, particularly in late winter (February).

- ←
- Currently based on forecast monthly/seasonal circulation & climate indices + expert opinion
 - R&D underway to explore skill of fully dynamical forecasts to make such forecasts