cmipipo 4/09/2024

EGU24 Townhall - Information for Society: from CMIP to decision makers

Discussion topics from the first breakout session (Data Access) are prefixed with a (1). Discussion topics from the second breakout session (Use and User Needs) are prefixed with a (2). Scroll right to view more sections.

(1) How can data format reduce barriers to its access?

Precalculated indices in the ensemble

♡ 0 ⬭ 0

Good documentation including clear examples that can support user analysis.

♡ 0 ⬭ 0

Data stream - do calculations on screen but really done in the cloud.

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Possibility of downloading different formats which cater to a variety of users

♡ 0 ⬭ 0

Regional information packages

♡ 0 ⬭ 0

Provided examples available

♡ 0 ⬭ 0

Cloud ZARR format

♡ 0 ⬭ 0

Datasets, not files

♡ 0 ⬭ 0

One possible barrier: ASCII <->NETCFD

♡ 0 ⬭ 0

A tool for gridded and complex data to make calculations easy to program and

computationally efficient (eg pandas, xarray)

♡ 0 💬 0

🔗 **Easy access and use**

♡ 0 💬 0

🔗 **Index for sectors**

♡ 0 💬 0

🔗 **Context specific data formats**

♡ 0 💬 0

🔗 **For key metrics simplified outputs
could be supplied in common format**

♡ 0 💬 0

(1) Data access

🔗 **1. Copernicus, 2. Google, 3. Out of touch**

♡ 0 💬 0

🔗 **1. Online, 2. Google, well-known
groups, scientists 3. Difficult procedure,
data protocol etc before downloading it**

♡ 0 💬 0

🔗 **1. WCRP, CORDEX, websites of the data ESGF,
DKRZ 2. WCRP, 3. Sometimes (CMIP) ESGF is
not available for certain parameters (esp. wind)**

♡ 0 💬 0

🔗 **1. Download + in house exploration of the
results 2. Language coding 3. IT security rules**

♡ 0 💬 0

🔗 **1. Publications/websites 2. Internet/conferences,
meetings (+informal) 3. Format, access, traceability**

♡ 0 💬 0

🔗 **Moving data where I want to use it**

🔗 **A policy maker's view: Where: Web search, scientific search for parliament. How to find: Web search, through science advice. Barriers: Processing and understanding products**

🔗 **A scientist's view: Where: Papers, online or archive, download. How to find: libraries. Barriers: large data sizes.**

🔗 **Barriers: Data volume/ processing capacity. Choosing correct products**

🔗 **A lot of data. How to know which to download if you have limited space and not sure which models are best.**

(1) How can documentation reduce barriers to accessing climate information?

🔗 **Guidance of what product to use for which application**

> **cmipipo** 4/15/24 5:34PM
> Fit for purpose criteria? Particularly for those using output.

> **cmipipo** 4/15/24 5:34PM
> For example when use raw vs downscaled.

> **cmipipo** 4/15/24 5:34PM
> Tailored approach

> **cmipipo** 4/15/24 5:35PM
> Complexity of modelling makes this even more challenging.

🔗 **Bias adjustment geographic area can be quite different from the region represented in historical modelling (when comparing with obs).**

🔗 **Can be too much documentation to digest, there needs to be a hierarchy of documentation.**

⇨ **Standardised and consistent model documentation.**

♡ 0 💬 0

⇨ **Need documentation on how urban
is represented in the GCM/ESM.**

♡ 0 💬 0

⇨ **Impenetrable documentation e.g.,
hydrologists figuring out GCM data.**

♡ 0 💬 0

⇨ **How are extreme events represented in the models?**

♡ 0 💬 0

⇨ **Consistent terminology and clear definitions
of jargon for interdisciplinary users**

♡ 0 💬 0

(1) Data guidance

⇨ **Hot model problem -- how to manage?**

♡ 0 💬 0

⇨ **If we know that a higher resolution has a different
result, is the low resolution model useless?**

♡ 0 💬 0

⇨ **If a model (CMIP6) has large regional biases,
how confident can we be in
downscaled/regional models using this data?**

♡ 0 💬 0

⇨ **Data availability (hourly) + friendly**
@ the met centre to help with interpretation

♡ 0 💬 0

⇨ **1 - Accessible, documented, 2 - depends on
variable (e.g. MSLP vs TAS), 3 - see above**

♡ 0 💬 0

At what scale the data become useful? How accurate data needs to be for [illegible] useful?

♡ 0 ⬭ 0

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climate sensitivity

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**number of available simulations
to build a large/robust ensemble**

♡ 0 ⬭ 0

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representation of extreme events, GCM->RCM

♡ 0 ⬭ 0

How does bias-correction influence outputs

♡ 0 ⬭ 0

**The differnece of climate model simulations
for future and weather forecasts**

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**multi-parameter use cases (application),
region, model performance**

♡ 0 ⬭ 0

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accessibility of data -- user friendly

♡ 0 ⬭ 0

(2) What do you do when different sources of information lead you to different conclusions?

The importance of uncertainty

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**More transparency needed on reason for
divergence, i.e. process understanding**

♡ 0 ⬭ 0

Low-regret adaptation measures

♡ 0 ⬭ 0

**Do our climate models explore
the full range of possibilities?**

♡ 0 ◯ 0

**How many GCMs should be downscaled
and what are the uncertainties of GCMs?**

♡ 0 ◯ 0

**Decisions might be the same even if data
are significantly different (statistically)**

♡ 0 ◯ 0

**Are all sources of information designed for the same
question (eg model/sytem X might be more suitabel
than model Y to asnwer a specific question)?**

♡ 0 ◯ 0

User-case dependent

♡ 0 ◯ 0

Use of storylines approaches

♡ 0 ◯ 0

Fit for purpose > exclude non-applicable data sources

♡ 0 ◯ 0

(2) How can tools help when using climate information?

Something like cdsapi (python package) for CMIP data

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**Tools that enable simple data discovery
without learning code language of meta data**

♡ 0 ◯ 0

Tools that give a measure of "actionabililty"

♡ 0 ◯ 0

○ **ChatGPT like consultant or co-pilot**

♡ 0 ◯ 0

○ **A tool that lets you know what has been tried**

♡ 0 ◯ 0

○ **Tools providing provenance and track versions**

♡ 0 ◯ 0

○ **Model and scenario context reporting
when accessing and processing data**

♡ 0 ◯ 0

○ **1. Python, Xarray 2. No easy access 3. Easy CMOR**

♡ 0 ◯ 0

(2) How do you communicate your needs?

○ **Turn climate model data into music to
get community engagement - music
resonated and then absorbed science**

♡ 0 ◯ 0

○ **Through data downloads or through events**

♡ 0 ◯ 0

○ **Word of mouth within experienced groups - if
lucky then get great advice but if not is challenging**

♡ 0 ◯ 0

○ **Started developing with one test user
and then rolled out when successful**

♡ 0 ◯ 0

○ **Co-production right from the start not
just reviewing existing information.**

♡ 0 ◯ 0

○ **Informed networks**

Some system to keep track of
user requests for modellers.

Local partnerships with intermediaries/knowledge
brokers to facilitate co-production

Involvement of social scientists in the co-production
process - language, psychology, resilience etc

Social media channels (Facebook for the
old folds, Insta/Tik Tok for younger)

Market research/focus groups - tried and tested way to
gather user needs so why not for climate information?!

Easy to read summaries for policy and decision makers

Tailoring products and fitness of purpose
of products needs to be communicated.

(2) Data guidance

folks discussed instead of using post-its