



USER ENGAGEMENT IN PRIMAVERA: PROGRESS AND NEXT STEPS

Meeting hosted by Dragana Bojovic (BSC, Spain)

Meeting presentation by Erika Palin and Galina Guentchev (Met Office, UK)



*With thanks to all of our colleagues in the
PRIMAVERA user engagement and climate risk assessment teams*

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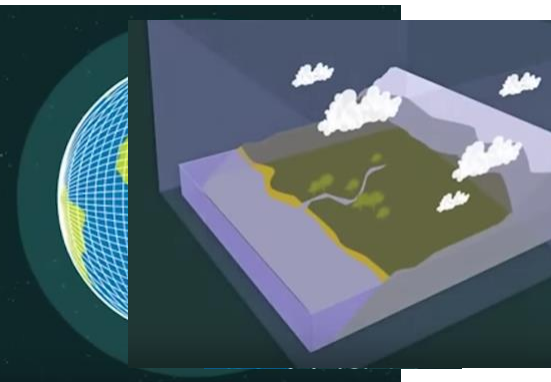


OUTLINE

- What is PRIMAVERA?
- How are we engaging with users?
- What have users told us?
- How are we using users' feedback in the project?
- Summary

WHAT IS PRIMAVERA?

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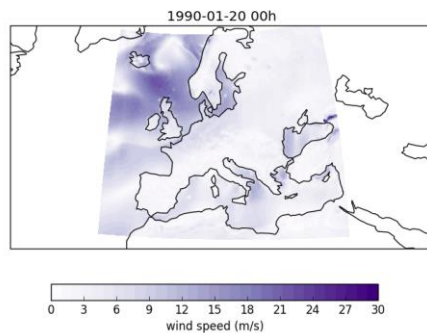


- PRIMAVERA is a European Commission-funded project about designing and running **new high resolution global climate models**,

and assessing their **ability to simulate societally important processes**,

and thereby providing information to **support climate risk assessment activities** across Europe.

Animation of wind storm Daria at 0.22° x0.22°



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PRIMAVERA video: <https://youtu.be/sTU7VKZHjEQ>

PROJECT STRUCTURE AND PROGRESS

PRIMAVERA THEMES



Innovations in modelling

- Harnessing the latest climate model developments

Flagship simulations for CMIP6

- Linking in with major international (IPCC-related) modelling activities

Drivers of European climate

- What key processes influence the climate of Europe?

Process-based assessment

- How well do PRIMAVERA models simulate key processes?

Climate risk assessment & user engagement

- YOU!

PRIMAVERA PROGRESS

▪ Current status:

- Atmosphere only simulations **completed** for the historical period
- Coupled models simulations are **under way** for the historical period
- User engagement in progress – survey, interviews, summary of information

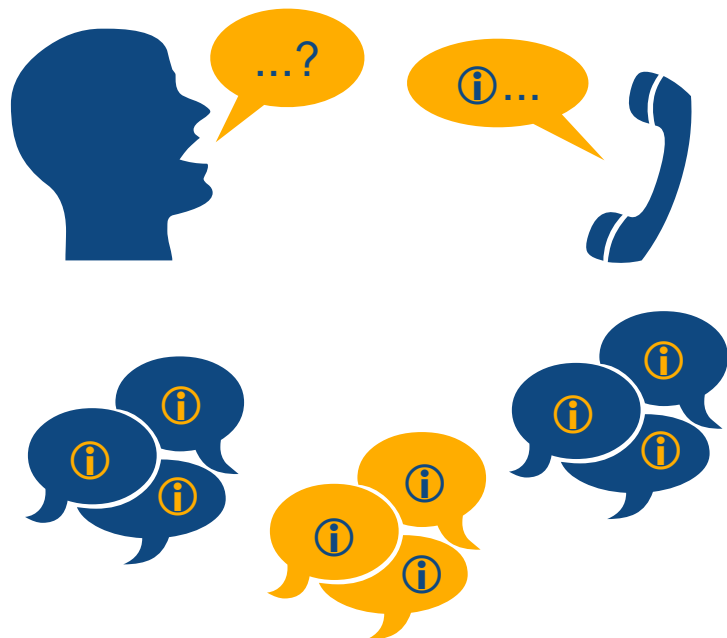


Atmosphere only model simulations, forced with observed and modelled sea-surface temperatures

Coupled Global Climate Models simulations – atmosphere, land, ocean, sea ice

USER-FOCUSED WORK

USER ENGAGEMENT APPROACHES



- Video (>300 views)
- Survey (>80 replies)
- Email list (75 subscribers)
- Twitter – @PRIMAVERA_H2020

- Interviews (47, across six sectors)
- Conferences: both science- and user-focused
- Webinars and virtual meetings (starting today!)
- Workshops (pending)
- Use cases

USER ENGAGEMENT APPROACHES

- **User Interface Platform**
(<http://uip.primavera-h2020.eu>)

- **User-relevant content, focused on key sectors of engagement**

- **Sector-focused storymaps and factsheets highlighting expected benefits of higher resolution, including:**

- Heatwaves / energy
- Flooding / transport
- Windstorms / insurance
- Post-tropical cyclones / agriculture

PRIMAVERA
User Interface Platform

HOME SECTORS REQUESTS **STORYMAPS**

HIGH RESOLUTION CLIMATE CHANGE PROJECTIONS CARRIED OUT WITH A NEW GENERATION OF CLIMATE MODELS

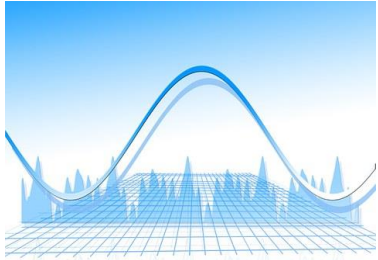
Welcome to the PRIMAVERA User Interface Platform. The aim of this website is to disseminate the results of the project to users and potential users. The new climate information arising from PRIMAVERA high resolution simulations is presented in the context

- Health
- Water
- Finance and insurance
- Energy
- Transport
- Agriculture

SOME RESULTS

HIGH-LEVEL FINDINGS: WEATHER / CLIMATE CHANGE KNOWLEDGE & EXPERIENCE

Participants:



Research and development
(academic / government)



Risk modelling

Consulting

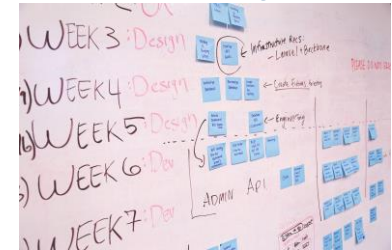


Governing and regulatory organizations



Operations and management

Planning



- Wide range of knowledge/experience with weather and climate and using weather/climate change information – depending on individuals / nature of their roles

Exploring

Learning

Applying

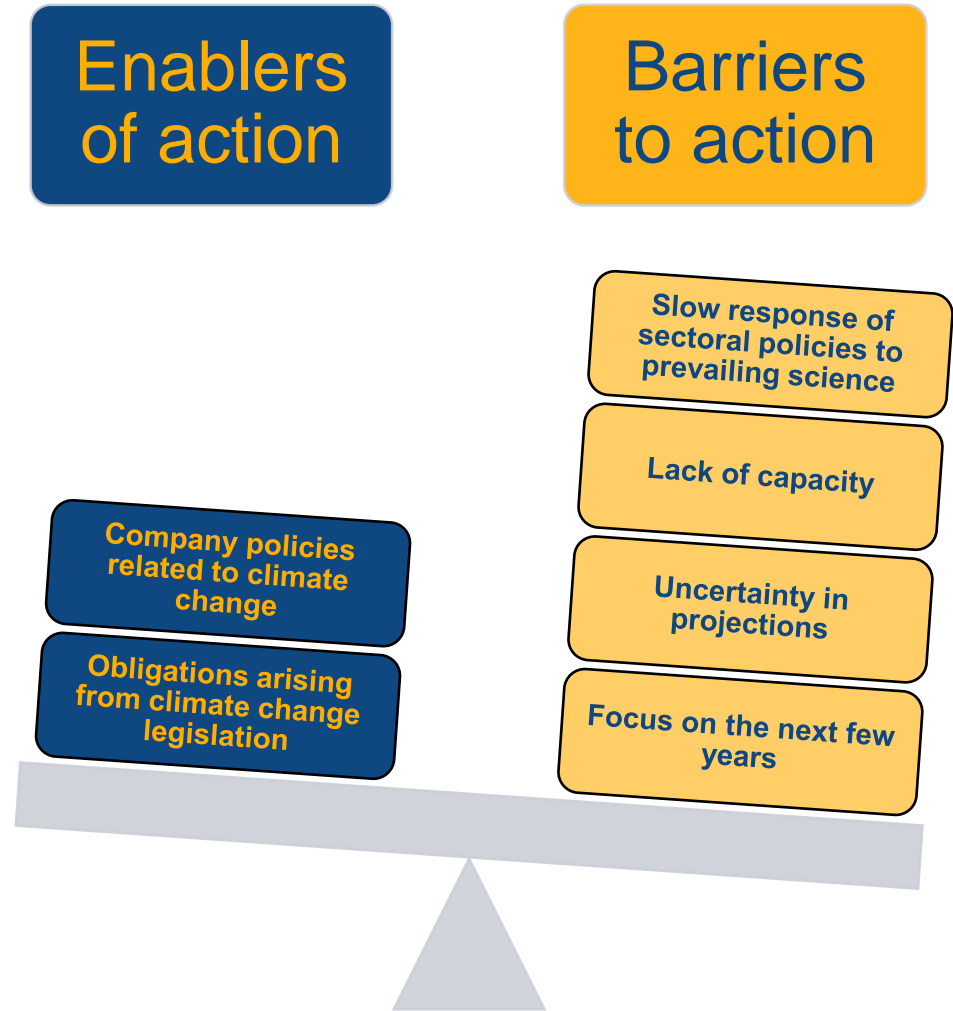
What information is out there?
Will climate change impact us?

How will climate change impact us?

How to include climate change considerations in our work?

HIGH-LEVEL FINDINGS: ATTITUDES TO CLIMATE CHANGE

- **Widespread acknowledgement** of climate change and its potential effects
- **Variation** in responding to the challenge of climate change, but no obvious pattern
- Some dependence of approaches **on the perceived size of the problem**



WHICH HAZARDS AFFECT / INTEREST YOU?

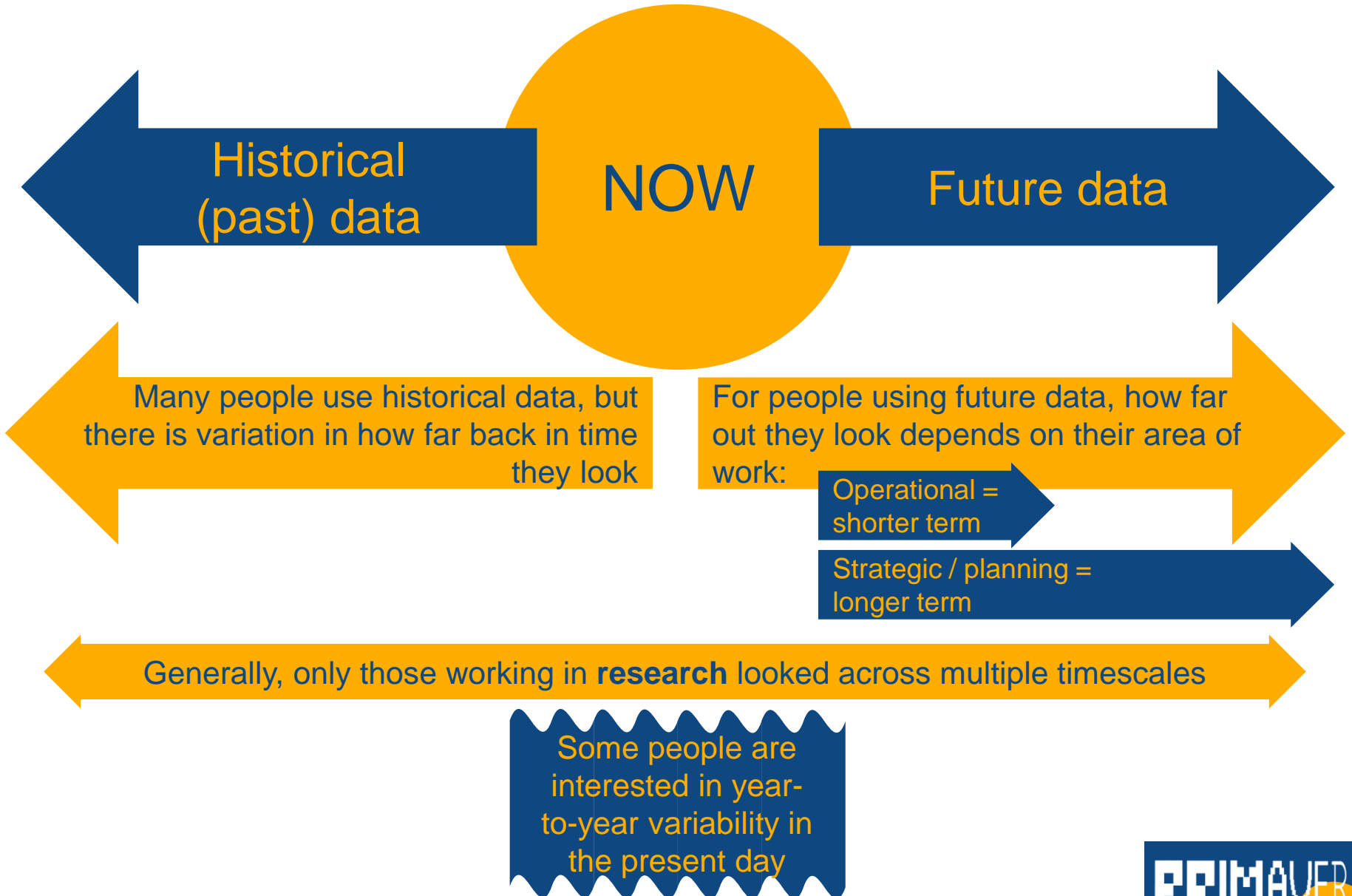
	Impact					Mean (sd)	n
	No effect	Little	Moderate	Large	V. large		
	1	2	3	4	5		
High T / heatwaves	6%	19%	28%	24%	22%	3.4 (1.2)	67
Low T / cold snaps	9%	33%	19%	15%	24%	3.1 (1.3)	67
Snow / ice / frost	4%	21%	30%	13%	31%	3.5 (1.3)	67
Rainfall & related flooding	4%	12%	16%	22%	46%	3.9 (1.2)	68
Coastal hzds inc. flooding	29%	18%	13%	13%	26%	2.9 (1.6)	68
Droughts	21%	15%	19%	22%	24%	3.1 (1.5)	68
High winds	9%	18%	6%	19%	49%	3.8 (1.4)	68
Lightning / conv. storms	22%	19%	15%	21%	22%	3.0 (1.5)	67
Earth mov't (landslips etc)	40%	17%	15%	8%	20%	2.5 (1.6)	65

- **Rain/flooding & high winds** are the most impactful (sector-wise) / interesting (research-wise) hazards

- **Landslips** are the least impactful / interesting

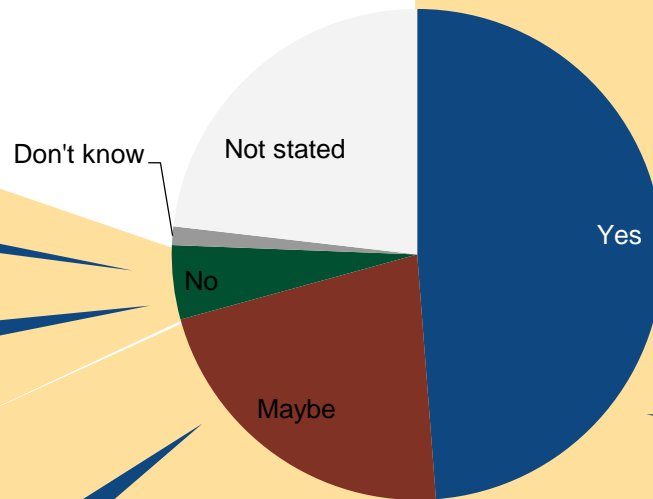
...but there is **sectoral variation** (not shown here)

WHICH TIME HORIZONS INTEREST YOU?



WHAT ABOUT (SPATIAL) RESOLUTION?

Would the higher-resolution information provided by PRIMAVERA be useful to your organisation?



Not applicable

We have very good resolution

Finer scale helps, but the main question is: how to use the available data?

Focuses only to the hazard (physical event itself), while we deal with risk

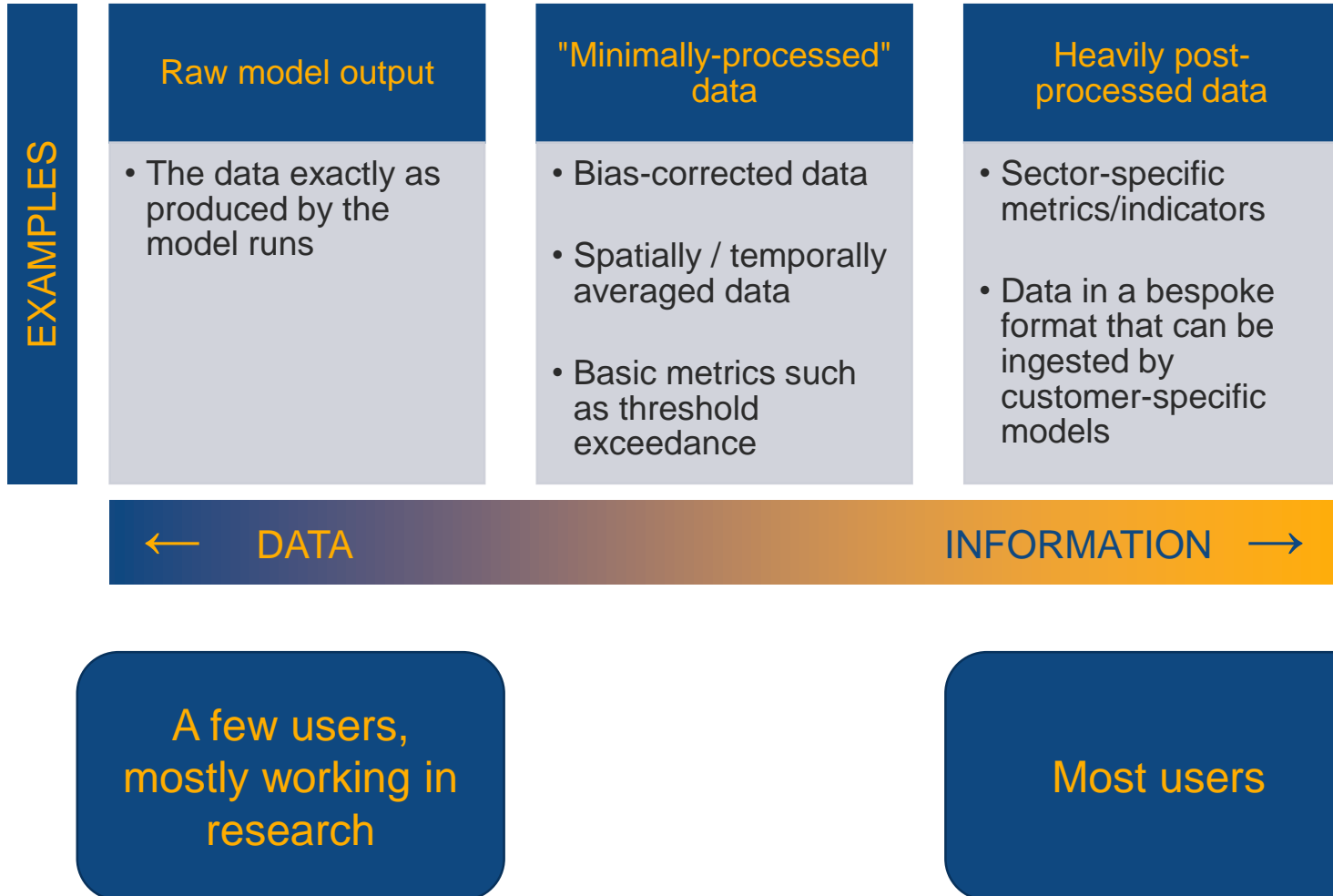
Best predictability of extreme events

Hazard information at these resolutions rarely exists at present

Good starting point for further downscaling

Impact studies require local information

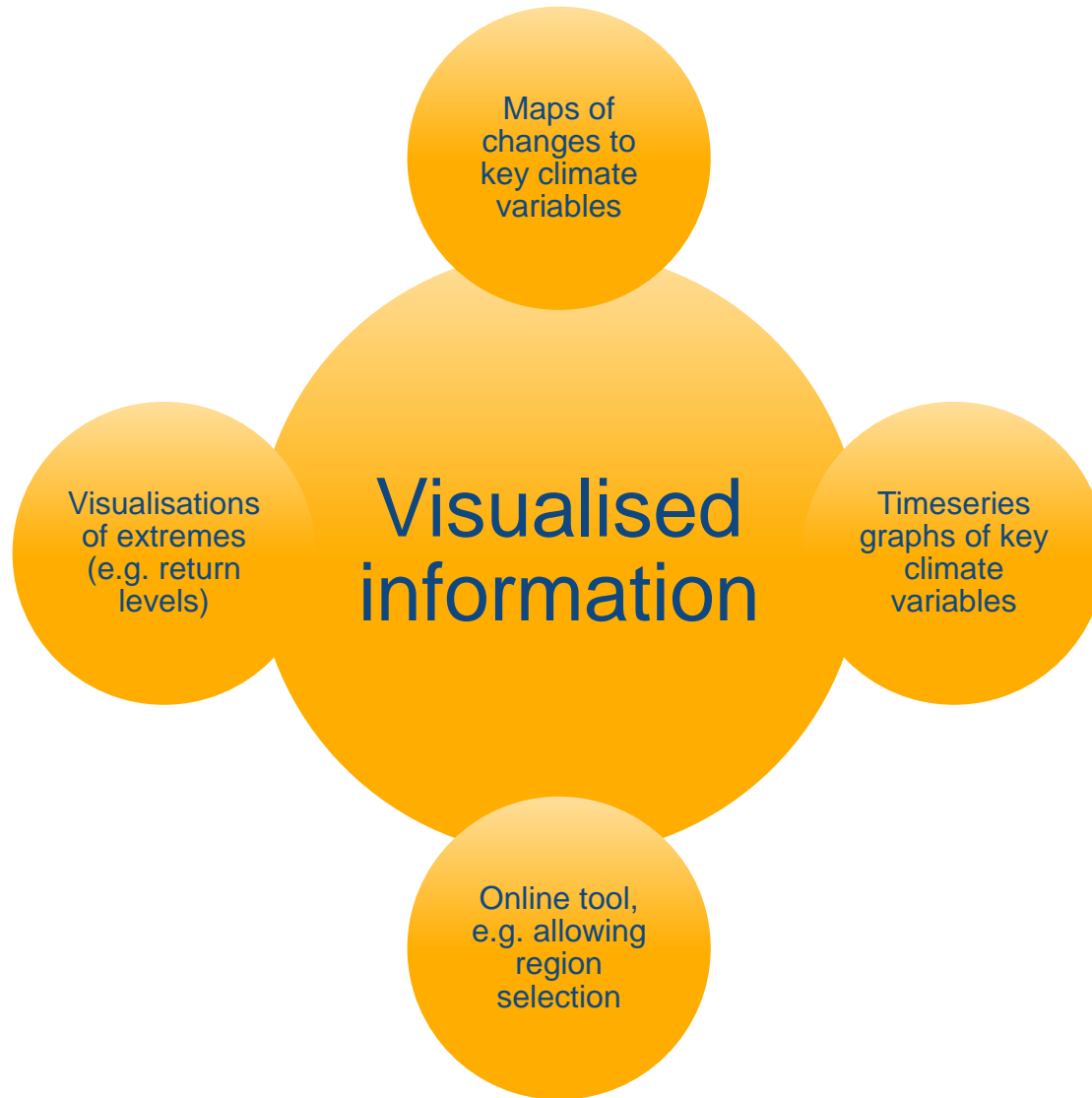
“DATA”, OR “INFORMATION”?



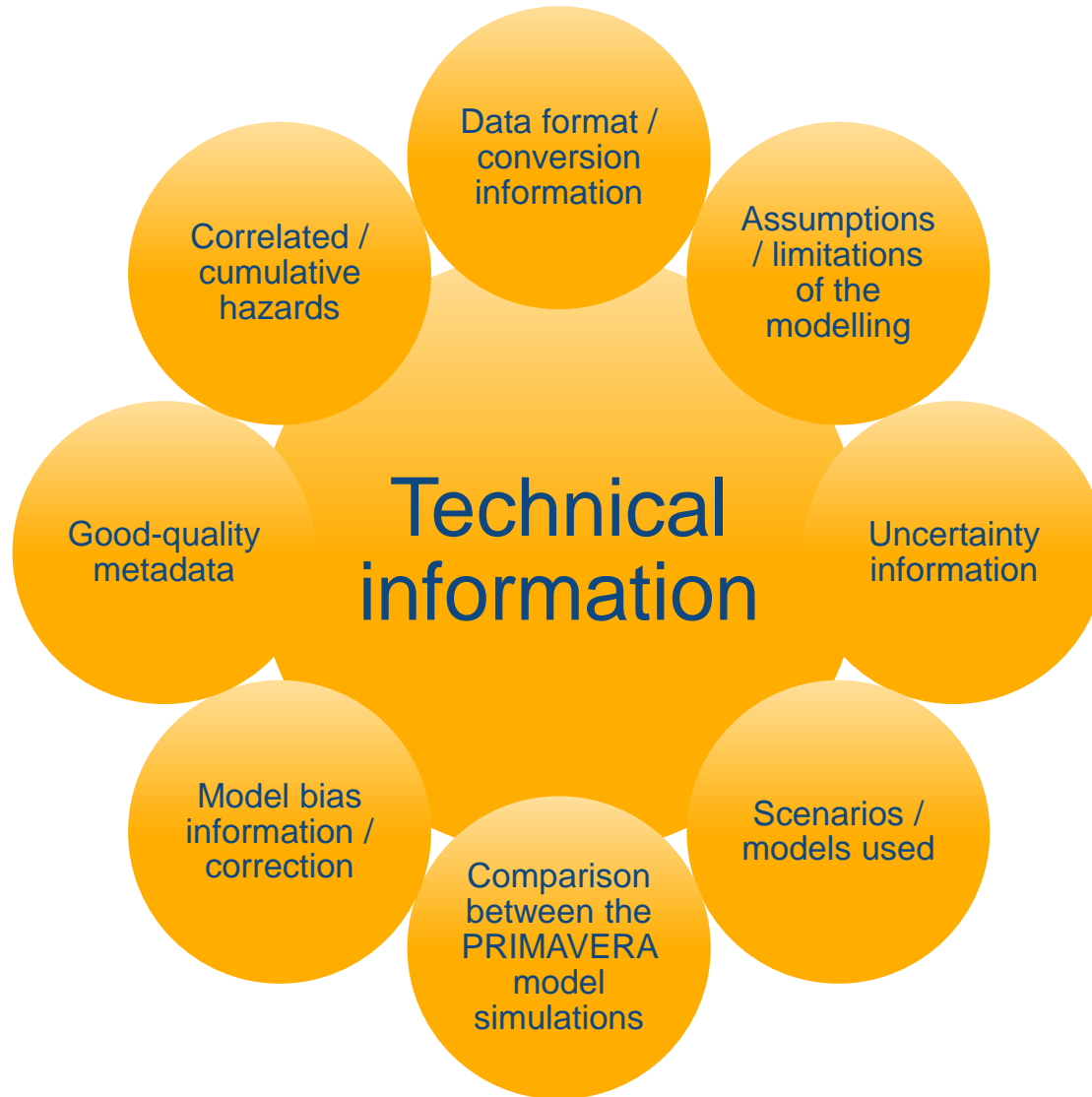
WHAT PRODUCTS / OUTPUTS WOULD YOU LIKE FROM PRIMAVERA?



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WHAT PRODUCTS / OUTPUTS WOULD YOU LIKE FROM PRIMAVERA?



WHAT ELSE HAVE WE LEARNED?



Management of privacy issues (e.g. with survey platform)



Geographic bias in survey responses / engagement generally



Even stronger geographic bias among those agreeing to be interviewed



Management of data protection issues

WHERE NEXT?

PROPOSED NEXT STEPS – HOW YOU CAN HELP

- Attending **conferences** – sectoral and scientific
 - Any suggestions?
- More **factsheets**
 - Suggested from interviews
 - Uncertainty, model simulations, methodological descriptions, case studies and more
- **Virtual meetings** – by sector
 - More detailed view of user requirements
 - Feasibility of user “wish lists” - what can be achieved within the project
 - Feeding into Stream 2 simulations



What are flood events?

Flooding occurs when areas not normally submerged become inundated by surface runoff, overbank river flows or groundwater. Pluvial flooding may occur when intense convective precipitation falls in a short period of time, or when prolonged moderate to heavy precipitation falls due to a front being stalled over an area or due to the passage of several consecutive storms over time. During such precipitation events, the ground may become saturated and no longer able to absorb the falling rain which leads to heavy surface runoff reaching rivers and flooding the surrounding areas. This is especially disruptive in cities, where the ground is often covered by impermeable surfaces, that do not allow infiltration of the rain water. The city waste-water drainage systems may not be able to cope with the large amounts of falling rain. Rivers can also become overwhelmed by surface runoff and intense precipitation, and burst their banks (river flooding) contributing further to the extent and impacts of a flood event.

What conditions lead to flooding?

A range of different meteorological conditions can lead to heavy rainfall and flooding. Flood events can result from strong convection leading to intense rainfall; or when several successive low pressure systems affect an area over a prolonged period of time, bringing humid and unstable air. Sometimes a slow moving cyclone allows



PROPOSED NEXT STEPS – HOW YOU CAN HELP

■ Face to face **workshops**

- Sectoral or thematic
- Engaging interaction and collaboration between scientists and practitioners



■ **PRIMAVERA outreach**

- Share your progress on weather mgt / CC adaptation
- More people to contact?
- Eastern Europe

■ **Use cases**

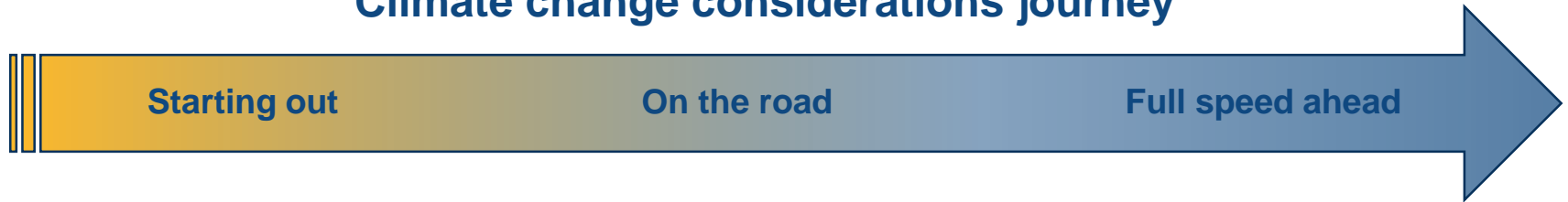
- Focusing on tangible issues
- Developed through collaborative and iterative process
- Feeding from Stream 2 simulations



USE CASES

- Expecting a variety of user questions

Climate change considerations journey



Starting out

On the road

Full speed ahead



Future changes in **heat waves**



Impacts of **extreme events** on the energy system



Construction of **wind storm** event sets



Information to support **flood hazard** assessment



Impact of **heat waves and droughts** on crop production



Extreme precipitation

IN SUMMARY...

- **Lots of useful feedback gathered** from users so far – but plenty more to do
- Interesting **insights** into user requirements...examples:
 - Perceived importance – and meaning – of “**higher resolution**”
 - **Similarities** and **differences** between sectors
 - Variation in **user knowledge / experience** of climate data / information...
 - **Data-savvy (& data-hungry!)** *Just give me access to the [raw] data, I know what I want to do*
 - **Informed / interested, but aware of (some of) the issues** *Can you help me to understand more about uncertainties in the modelling?*
 - **Taking their first steps** *We're only just looking at adaptation now, and I'm not sure where to start*
- ...more thinking to do about how to cater for **different needs**
- The real “**co-design**” part of PRIMAVERA (Stream 2) is yet to come!



THANK YOU!

QUESTION AND DISCUSSION SESSION

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