

The Global Observing System for Climate - Update

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Principles

- Observations remain crucial for monitoring, understanding and predicting the variations and changes of the climate system
- They need to be collected over substantial timescales with a high degree of accuracy and consistency in order to observe directly long term trends in climate.
- GCOS now needs to address not only the science of climate change, and how climate change can be understood, modelled and predicted, but also the observational needs of mitigating and adapting to climate change.

Fire Disturbance in the new IP

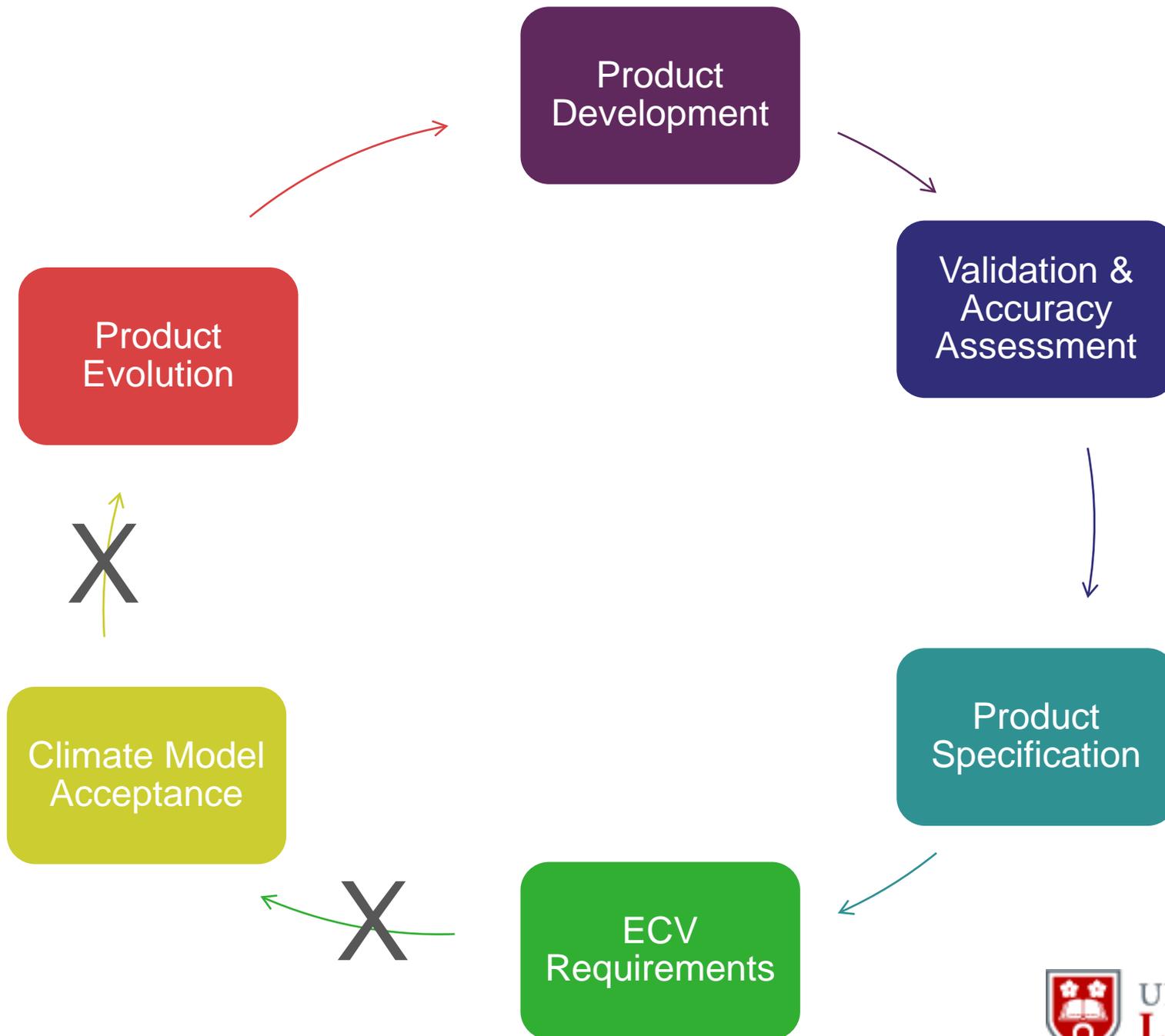
- 5 Actions
- 3 observables (the active fire, FRP/FRE & burnt area)
- Agreement over the product characteristics as described by the producers

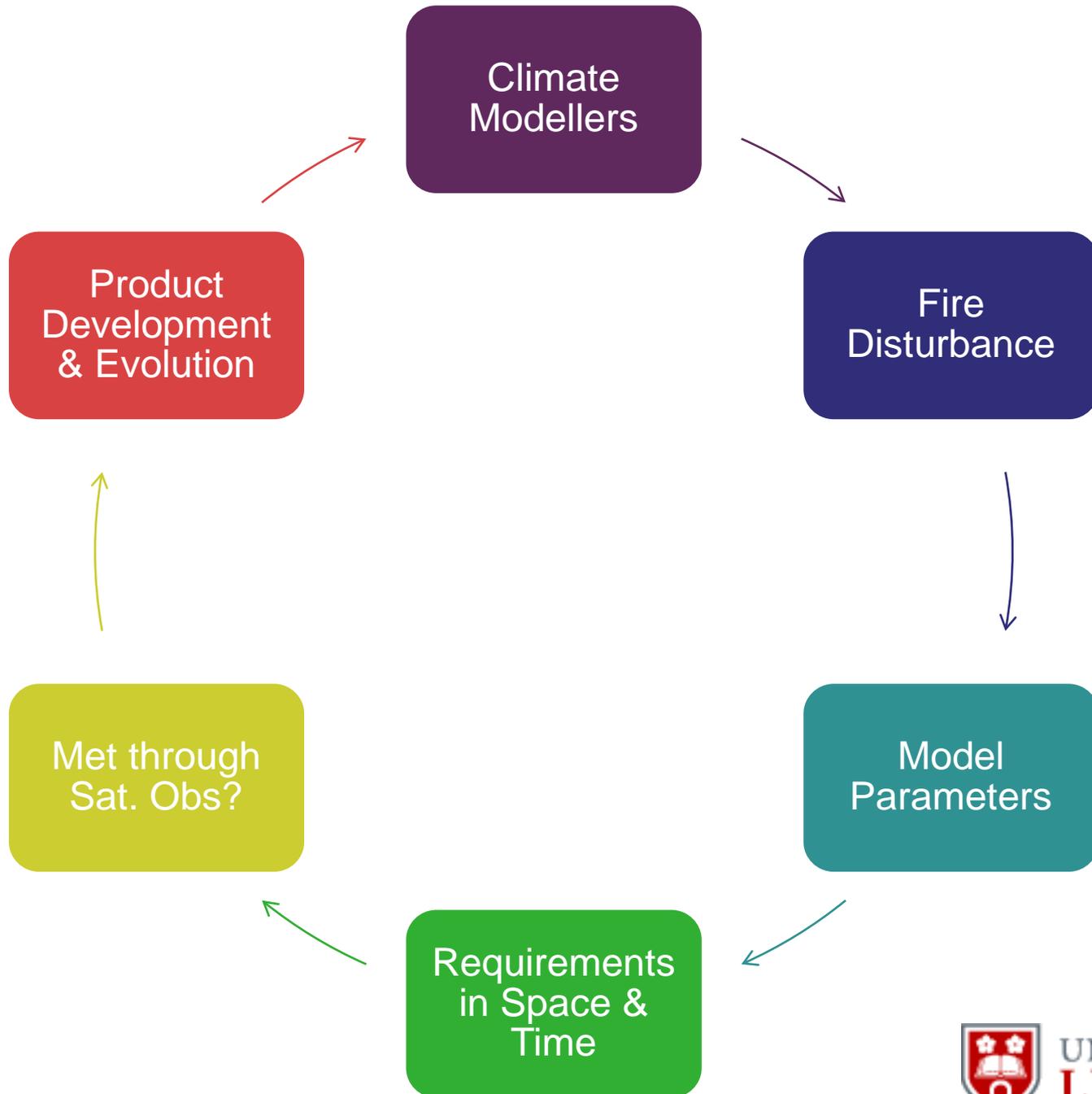
But ...

ESA CCI meeting discussions were held on 'Addressing the problem of imprecise definitions for accuracy and stability in the GCOS target requirements'

I believe that as producers, we are reasonably confident in our descriptors of accuracy

Who is in control of levels of acceptability?





Closing the Loop

- What is our definition of product stability?
 - Not Applicable = a gap in the IP

- What about temporal stability?

- How do we measure and report?

Closing the Loop

- Are our Accuracy Measures Meaningful?
- Are we at all concerned about uncertainty? From a product development perspective?
- Can we look to report the bias in area estimates of products? Can our validation data support this?

Closing the Loop

- What is our definition of product stability?
- Stability may be thought of as the extent to which the accuracy remains constant with time. Over time periods of interest for climate, the relevant component of total uncertainty is expected to be its systematic component as measured over the averaging period. Stability is therefore measured by the maximum excursion of the difference between a true value and the short- term average measured value of a variable under identical conditions over a decade. The smaller the maximum excursion, the greater the stability of the data set.
- Does this make sense?

Closing the Loop

- Are our Accuracy Measures Meaningful?
- Accuracy is defined as the “closeness of the agreement between a measured quantity value and a true quantity value of the measurand” (BIPM, 2008). The concept ‘measurement accuracy’ is not a quantity and is not given a numerical quantity value. A measurement is said to be more accurate when it offers a smaller measurement error.

Closing the Loop

- Are we at all concerned about uncertainty?
- Uncertainty of a measurement is a non-negative parameter characterizing the dispersion of the quantity values being attributed to a measurand, based on the information used (BIPM, 2008). The uncertainty is often described by a random and a systematic error component, whereby the systematic error of the data, or measurement bias, is the difference between the short-term average measured value of a variable and the best estimate of its true value. The short-term average is the average of a sufficient number of successive measurements of the variable under identical conditions such that the random error is negligible.

Conclusions & Next Steps

- **GOFC-GOLD should show leadership in closing this producer/user requirement issue**
 - Who is responsible for setting requirements?
 - How can we note/act when requirements change?
- It should form a team dedicated to supporting modelling the climate system to:
 - Close the loop
 - Start a process to lead on an activity to look to derive products for climate adaptation/mitigation
 - Systemise validated regional products

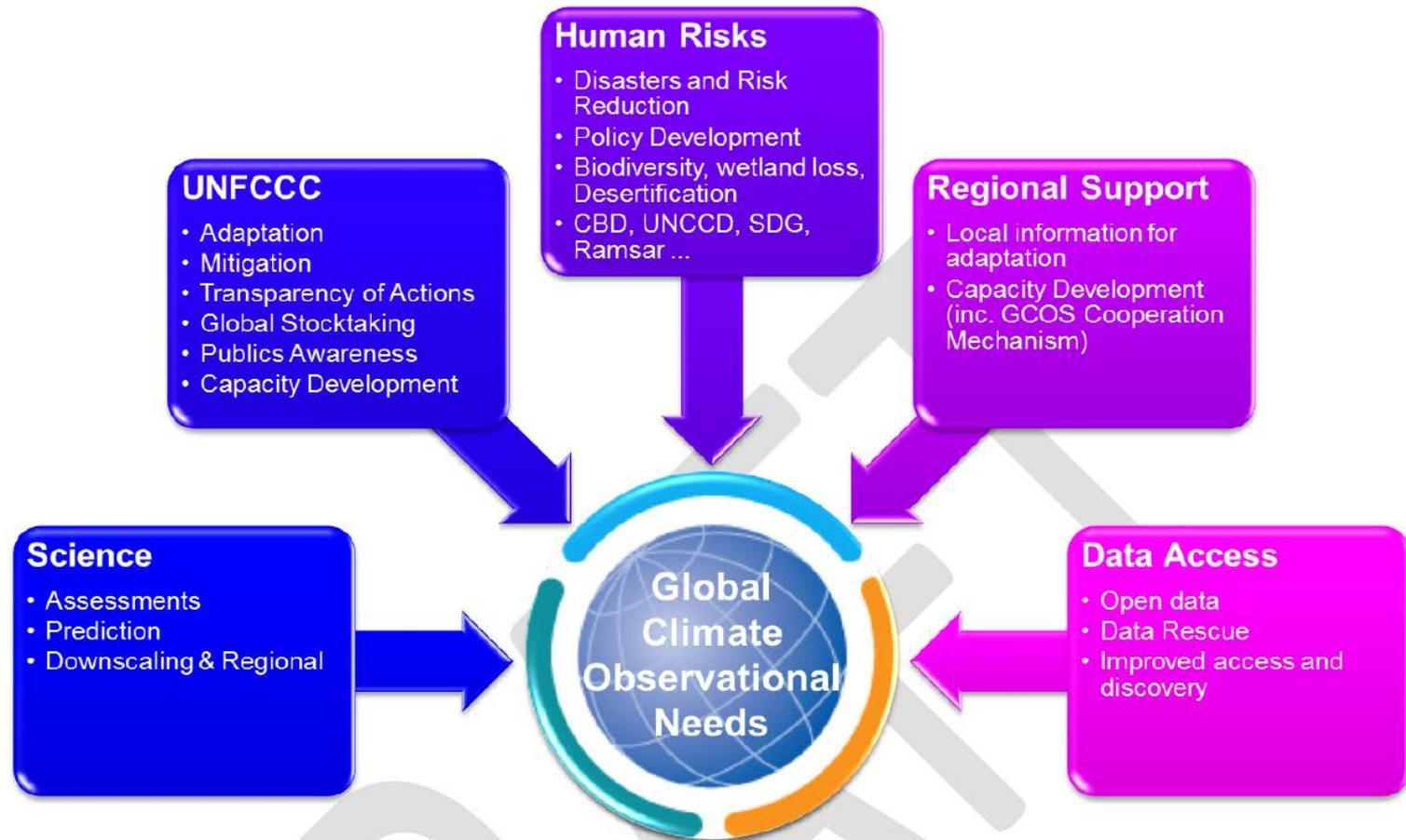


Figure 3: This Implementation plan addresses the climate monitoring needs that come from a wide range of related sources. While this plan is primarily aimed the needs of the UNFCCC and the scientific assessments that underpin it, other needs are considered where relevant.

Conclusions & Next Steps

- This is not just needed for GCOS
 - Let's not just serve this community
- Essential Biodiversity Variables
- REDD+
- LULCC
- Carbon Storage/Sinks/Sources
- Keep the list of products updated
 - Cross-product user manual

Principles

- Uncertainty over the provenance of the Reqs.
 - Accuracy, Stability, Resolution of Satellite Products
 - Application Areas (20/14)
- Gap between product accuracy and requirements
- No significant product validation since 2014
- Active fire detections and FRP supplementary
- Uncertainty characterisation
- Concerns over the transparency of the process
 - Lack of contribution and engagement