BIOSPHERE BREAKOUT UPDATE

Marrakech, Morocco

Nadine Gobron, Nic Bax, Johannes Karstensen, …, Peter Thorne, Joanna Post, Bernadette Sloyan

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Introduction.

What do we consider included in GCOS?
- Is it the biosphere/ecosystem functioning within the climate system?
or broader than that:
- Climate impacts on biosphere/ecosystem?

- ECVs Ocean : Plankton, Marine Habitat,
- ECVs Terrestrial : Landcover, Leaf Area Index, Fraction of Absorbed Photosynthetic Radiation, Fire Disturbance.

Terrestrial ECVs: precursers to variables are needed. Need a deep review.

Potential to combine with marine (first attempt to include Biology in last IP), to develop a combined plan for tracking changes in biosphere?

Connecting Global Terrestrial, Ocean biosphere observations

- Global variables to track….(Drawing on discussions re. Biosphere in IPCC 6AR, EBVs…)
  - Phenology
  - Distribution
  - Productivity.

Phenology

- Contributing ECVs: Leaf Area Index, FAPAR Ocean Colour, Marine Habitat, Landcover
- Consider available timeseries,
  - long term phenological records… explore across land and ocean, paleoecological timeseries.
- Challenge:
  - Data are often captured by community groups.

Consider project to gather data into common format, including citizen science data? Funding by Future Earth?

Distribution

- Existing ECVs: Landcover, Marine Habitat Properties
- Assemblages …
- Range shifts detected in ocean, harder to distinguish climate induced changes in land….
  - consider indicator species/assemblages? e.g. tree line in the mountains, northerly occurrence of tree species, birds (differences in triggers, mobility).
- >40 new species have arrived in Tassie. (number move polewards verses towards the equator)
- 400km per decade in the ocean.

Productivity

- Very important, but hard to measure…
- What can we get from Ocean Colour, Plankton, Land Cover, Leaf Area Index, FAPAR….
- Synthesis products….

- Conclusion: watching brief.

Next steps

Recommendation:

Workshop on observing phenology and distribution, key species/assemblages (across land and ocean).

Consider Available datasets, citizen science projects, etc.

Further thoughts.

Extreme events:

- Discuss climate extremes (e.g. heatwaves, rain events, droughts, etc).
- Also in the Ocean: Marine Heatwaves, Mass Mortalities (Coral, Mangroves, etc).

- Propose a break out on Extreme Events tomorrow.