Greenhouse Gas Observation & Climate-Smart Agriculture

ICOS INTEGRATED CARBON OBSERVATION SYSTEM

THÜNEN

Designing a feasible and representative research infrastructure network for GHG observations in Africa (SEACRIFOG)

Dr. Emmanuel SALMON, ICOS

GEO-XV – Kyoto 京都 – 29.10.2018

@SEACRIFOG

European Commission

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SEACRIFOG: The partners

7 European countries
14 African countries

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SEACRIFOG: The rationale

- EU & Africa
- Research Infrastructures
- Food Security
- GHG Emissions

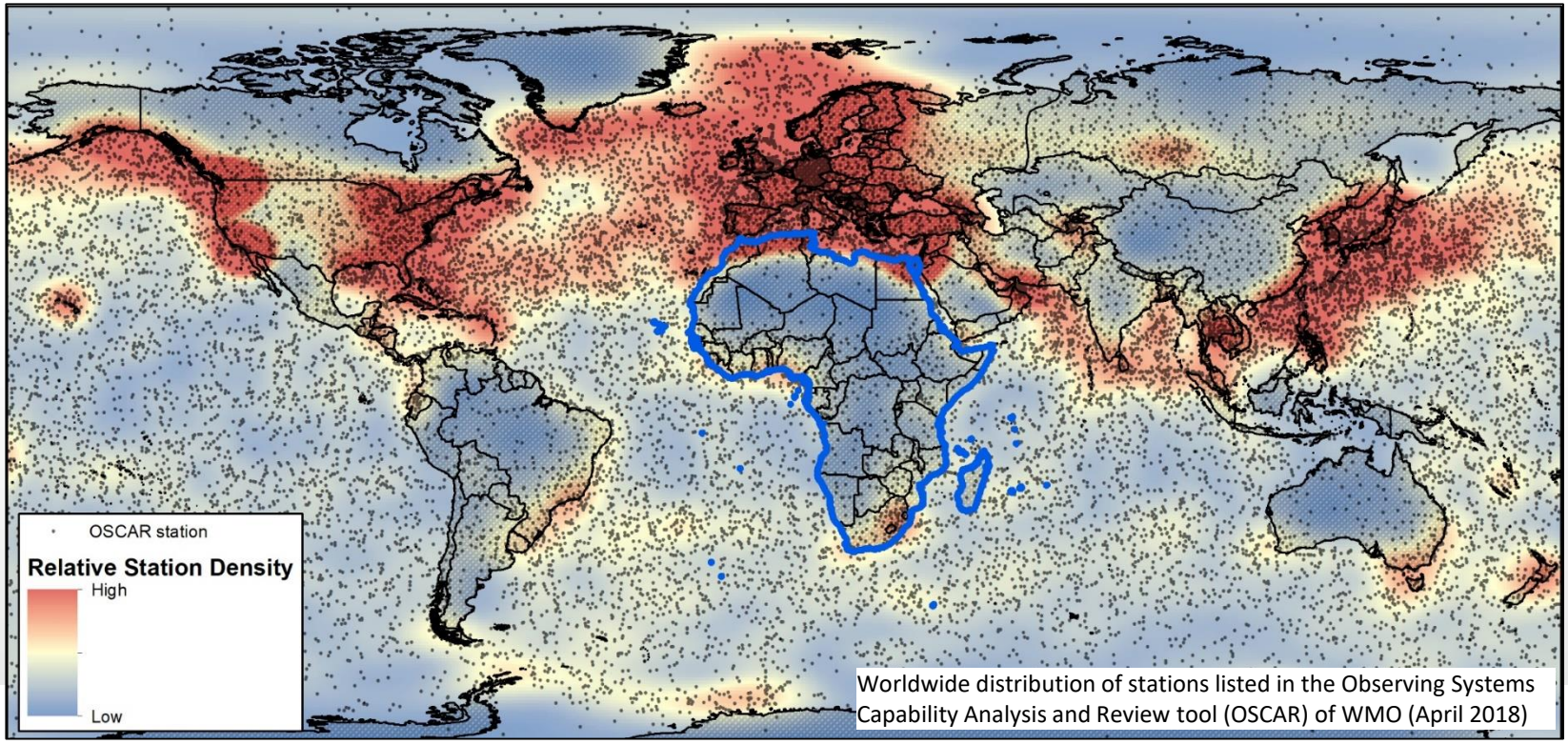
Also keep in mind

- Urbanization
- Biodiversity
- Partnership

SEACRIFOG: The starting point

Global observation of climate-relevant variables

→ **Major gaps in Africa → Large uncertainty of GHG fluxes and budget → Need for long-term, RI-type solution**



Worldwide distribution of stations listed in the Observing Systems Capability Analysis and Review tool (OSCAR) of WMO (April 2018)

SEACRIFOG: The main questions

What needs to / can be observed across the African continent to serve the purpose of food security?
→ Ideal and mandatory set of observational variables

What are the gaps & needs in terms of infrastructure?
→ Inventory of existing and planned networks

What are the gaps & needs in terms of data?
→ Assessment of available data (spatial & temporal coverage, quality, sustainability…)

What are the relevant methodological protocols?
→ Interoperability and harmonization
→ Define minimum requirements
→ Adopt existing protocols where possible, modify where necessary

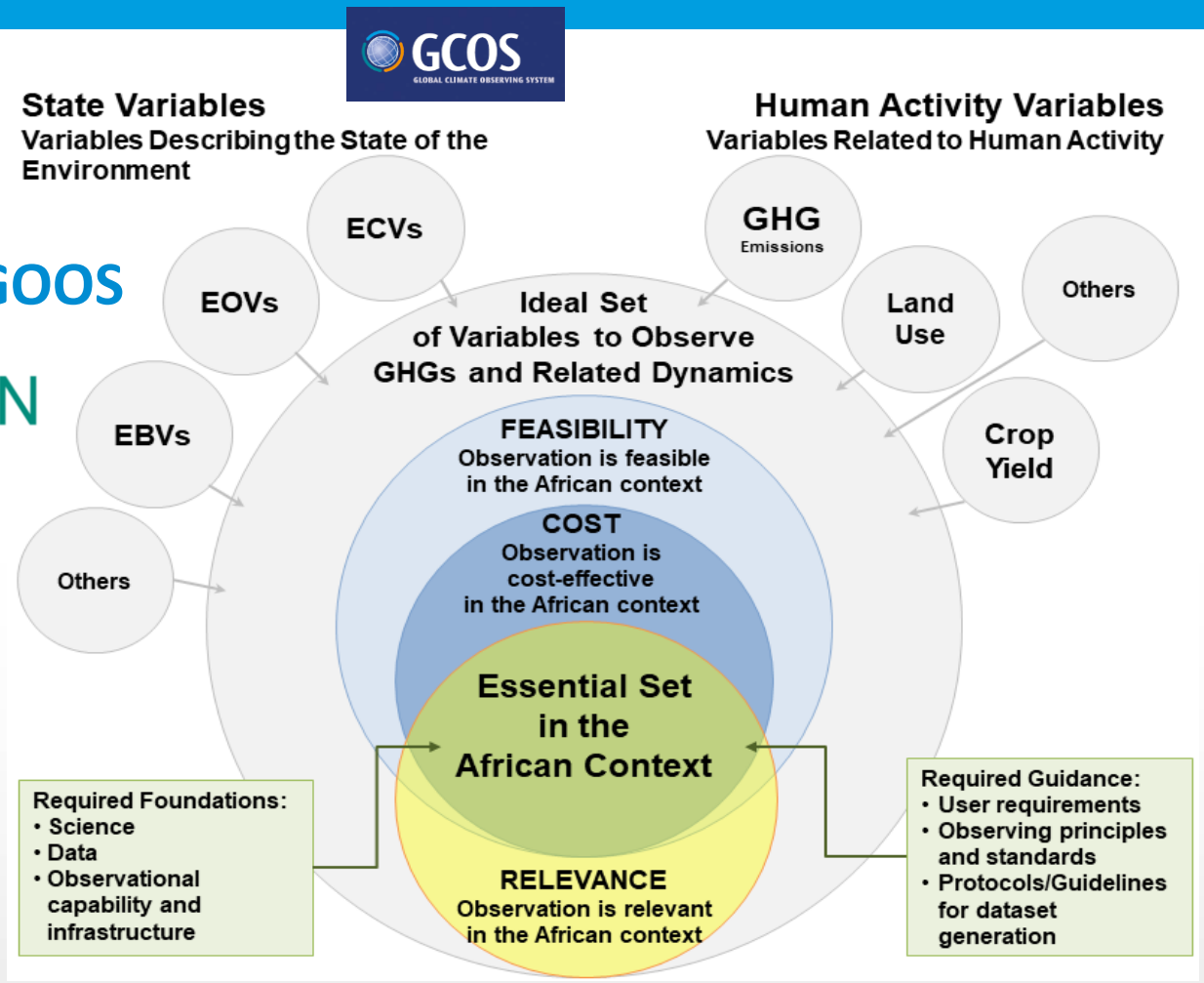
Design of a continental observational network, tailored to African requirements and addressing food security issues

→ The SEACRIFOG Tool

SEACRIFOG: The Essential Variables 1/2

Top-down approach:
Drivers of anthropogenic climate forcing

Bottom-up approach:
Consultation & ranking



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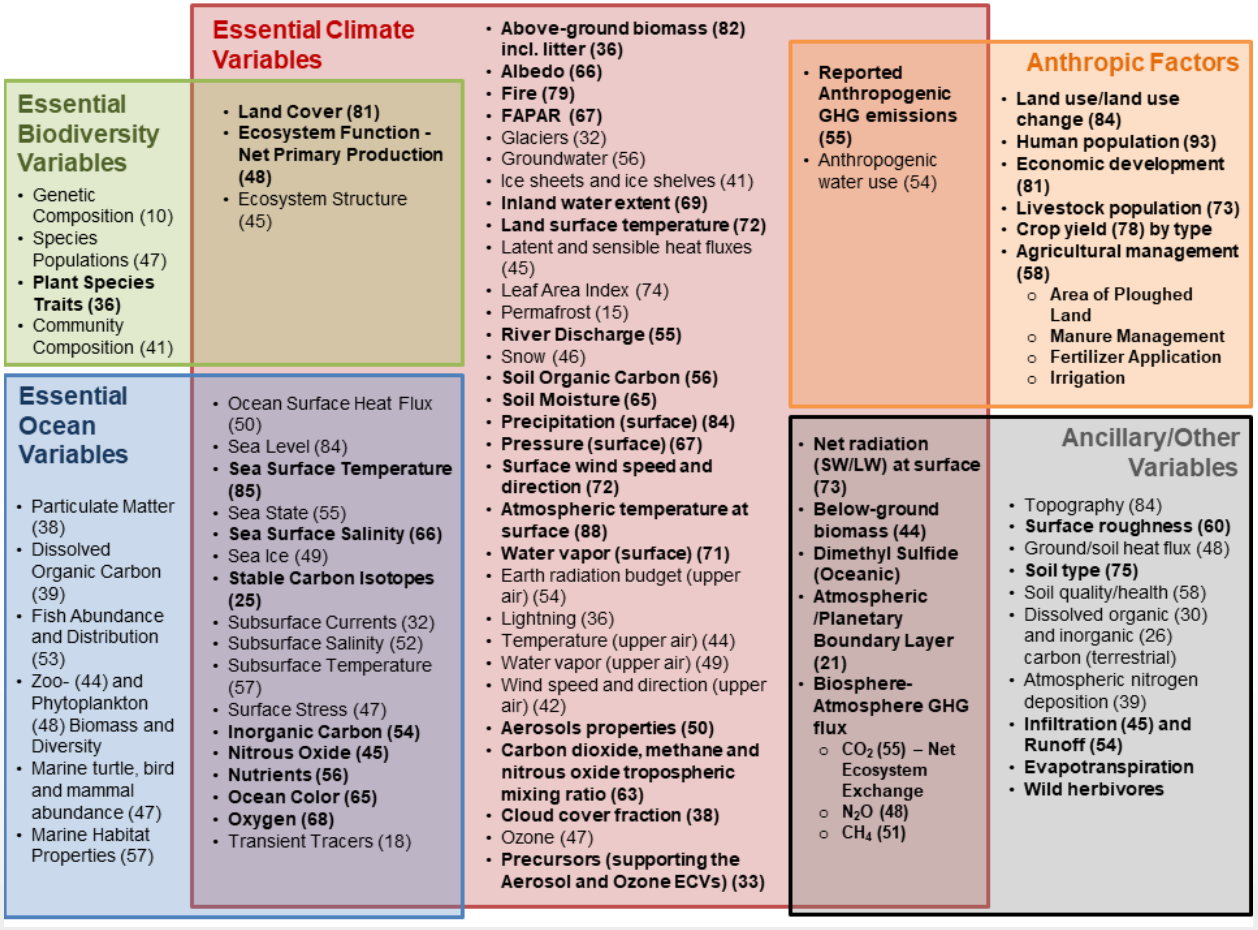
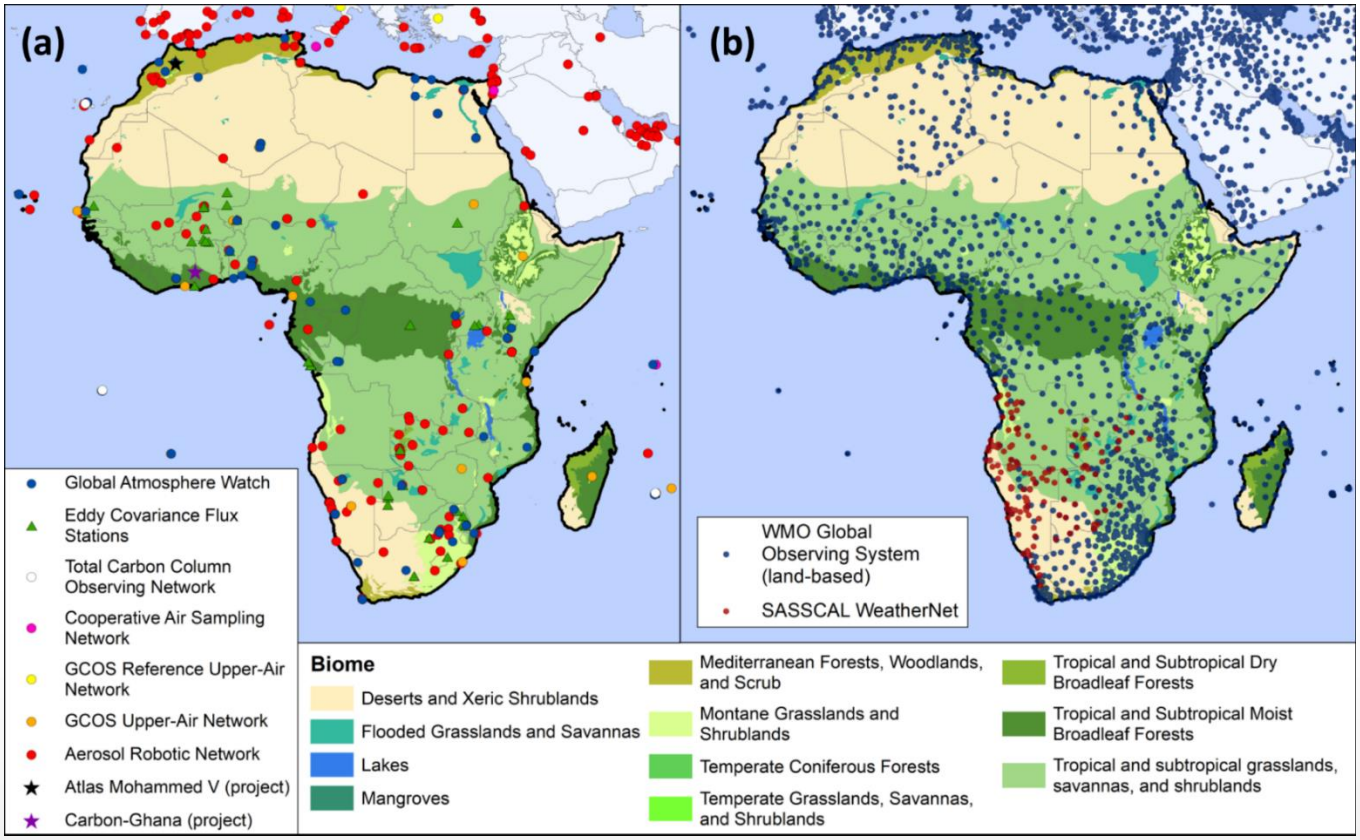
SEACRIFOG: The Essential Variables 2/2

→ 58



Deliverable 4.1

SEACRIFOG: The existing networks



Observational stations of selected networks and their relative density for (a) ground-based atmospheric and greenhouse gas, (b) ground-based meteorological observation on the African continent (from López Ballesteros et al., 2018).

Deliverable 3.1

SEACRIFOG: Stakeholder engagement

3 Regional Stakeholder Consultation Workshops: 72 participants, 33 organizations, 16 countries

→ Nairobi, Eastern Africa, 31.5.2017
→ Sunyani, Western Africa, 16.6.2017
→ Lusaka, Southern Africa, 18.4.2018

Concern about data and metadata…
availability, accessibility, usability, interoperability, resolution, format and quality

… need for a comprehensive and collaborative approach: considering not only scientific, technological and ecological issues, but also socio-economic dynamics

… to support the success and the long-term sustainability of a RI network.

SEACRIFOG: Already available

Environmental Research Letters

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LETTER

OPEN ACCESS

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Towards a feasible and representative pan-African research infrastructure network for GHG observations

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http://seacrifog-tool.sasscal.org

- **Report on users' needs** (Elisa Grieco, elisa.grieco@cmcc.it)
- **Literature analysis** (Adéyèmi Chabi, chabi.a@wascal.org)
- **Improved emission factors** (Lutz Merbold, l.merbold@cgiar.org)
- **Workshop Cabo Verde** (Arne Körtzinger, akoertzinger@geomar.de)

SEACRIFOG: Under development / Next to come

- **Further improvement of SEACRIFOG tool**
  - → assessment of data products (coverage & quality)
  - → inventory / development of standardized protocols
  - → diagnosis and planning tool for future RIs in Africa
- **Network design based on spatial optimization**
  - → inverse modeling
- **SEACRIFOG Dialog Platform**
  - → implementation, use, capacity-building…

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ありがとうございます

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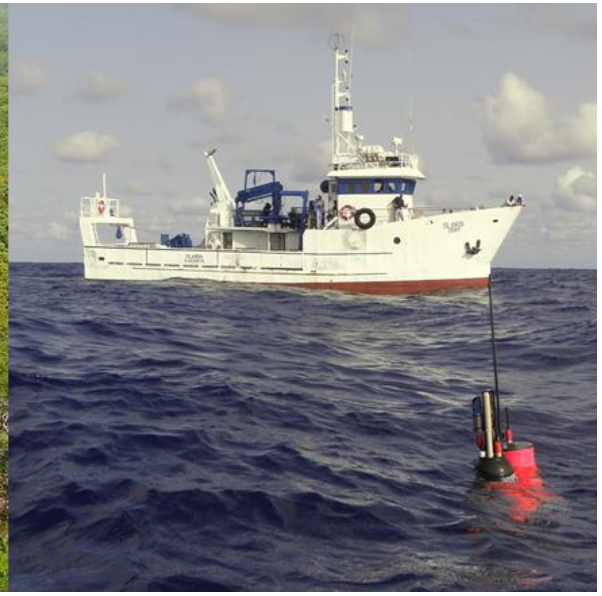

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