



BIOSCAPE

Biodiversity Survey of the Cape

www.bioscape.io

An international collaboration to address biodiversity-focused scientific problems lending themselves to a combination of satellite, airborne, and in situ data collection.

A focus on concurrent imaging spectroscopy, multispectral thermal infrared and waveform lidar

#TheEarthTalks GEO WEEK & Ministerial Summit 2023



Adam Wilson
University at Buffalo, NY



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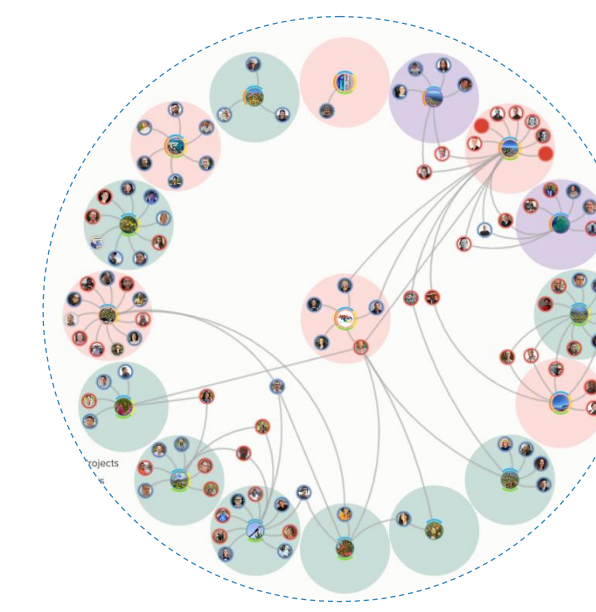
Jasper Slingsby
University of Cape Town & SAEON



Anabelle Cardoso
UB & UCT



Cherie Forbes
UB & UCT



**A network of
>150 others
from >30
institutions!**



TIMELINE

2015

NASA Scoping call for proposals for a biodiversity field campaign

Explore biodiversity across levels (ecosystems, species, genes) and how and why these are changing.

2017

Decadal Survey identified Surface Biology and Geology (SBG) as a Designated Observable

Global spectroscopic (hyperspectral) visible to shortwave infrared (VSWIR) and thermal infrared (TIR) imagery

2021

BioSCape started and funding call for sub-projects

*19 teams, ±150 people
-17 teams funded by NASA
-2 funded by NRF and SANSA
±50/50 US/SA participants
>30 institutions*

2023

Airborne and in situ data collection currently underway!!!

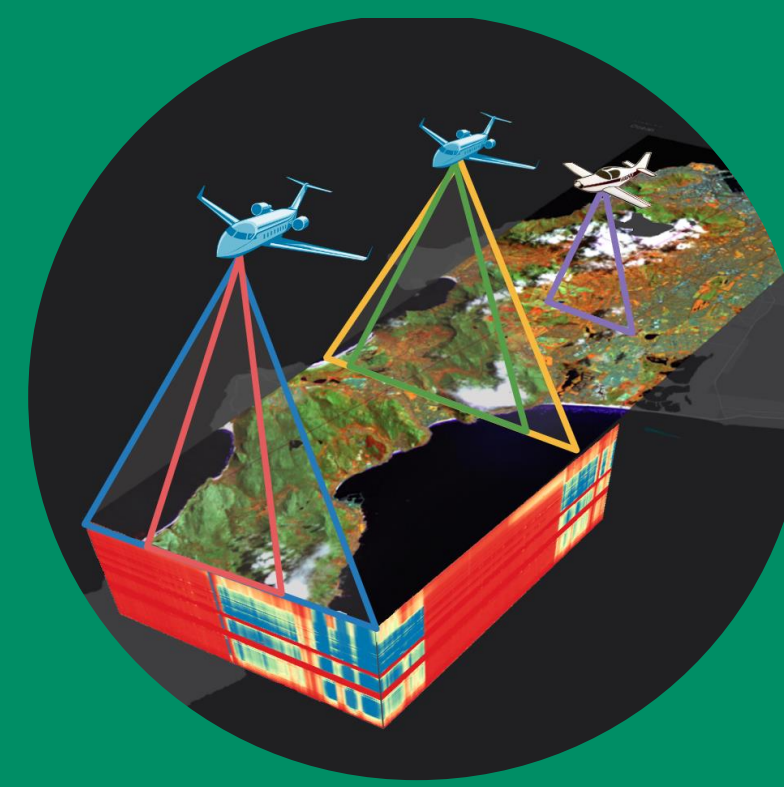
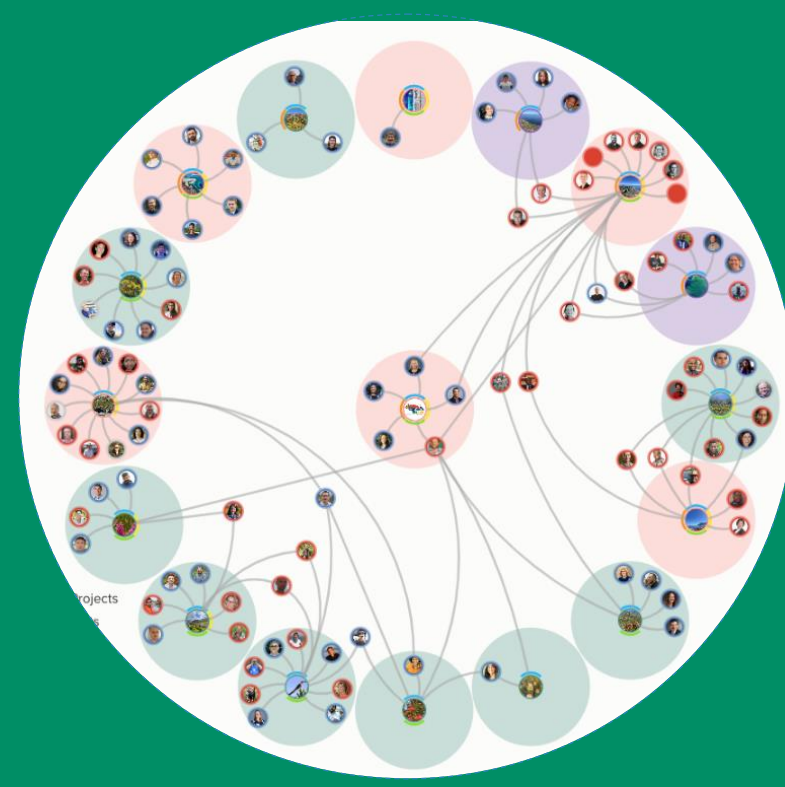
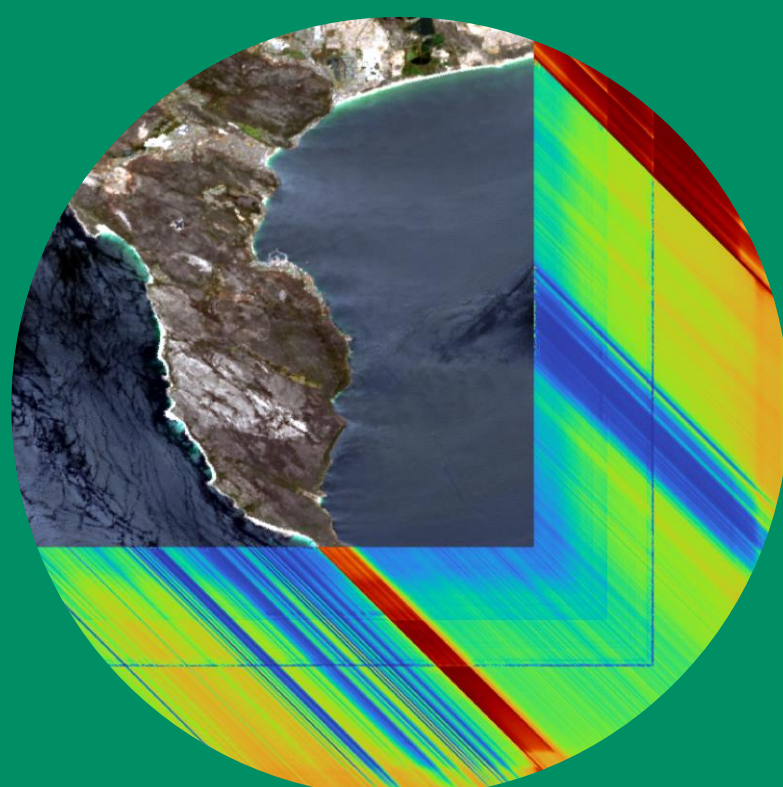
*2 NASA planes
2 imaging spectrometers
1 multispectral thermal
1 lidar
AVIRIS-NG, PRISM, HyTES, LVIS*

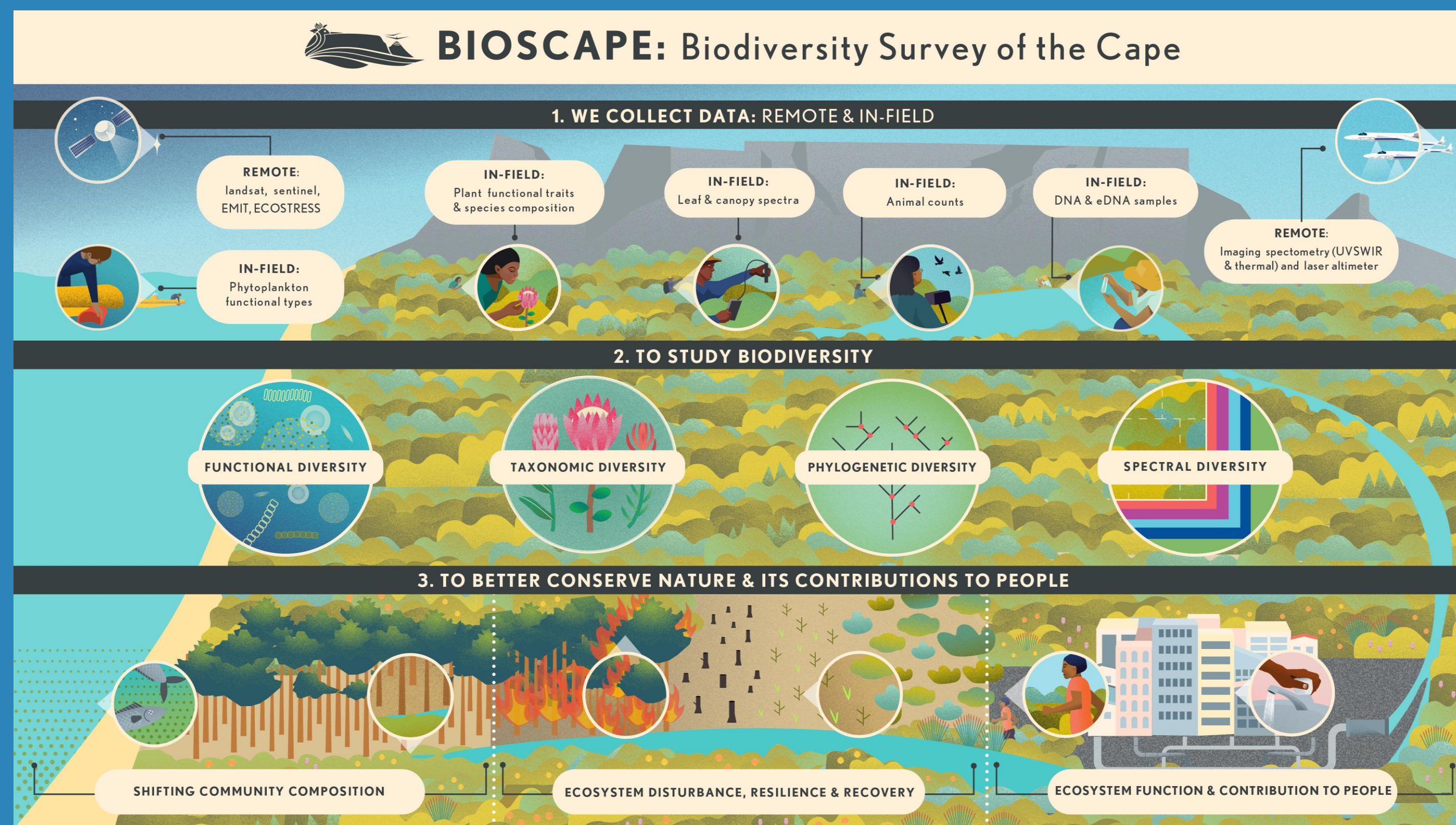
2024



Analysis, publication, dissemination of data and products to end users

Proof of concept and algorithms for early adoption of SBG satellite data





**Taxonomic, Functional
and Phylogenetic
diversity**



**Invasive
species**



**Improved ecosystem
or land cover
mapping**



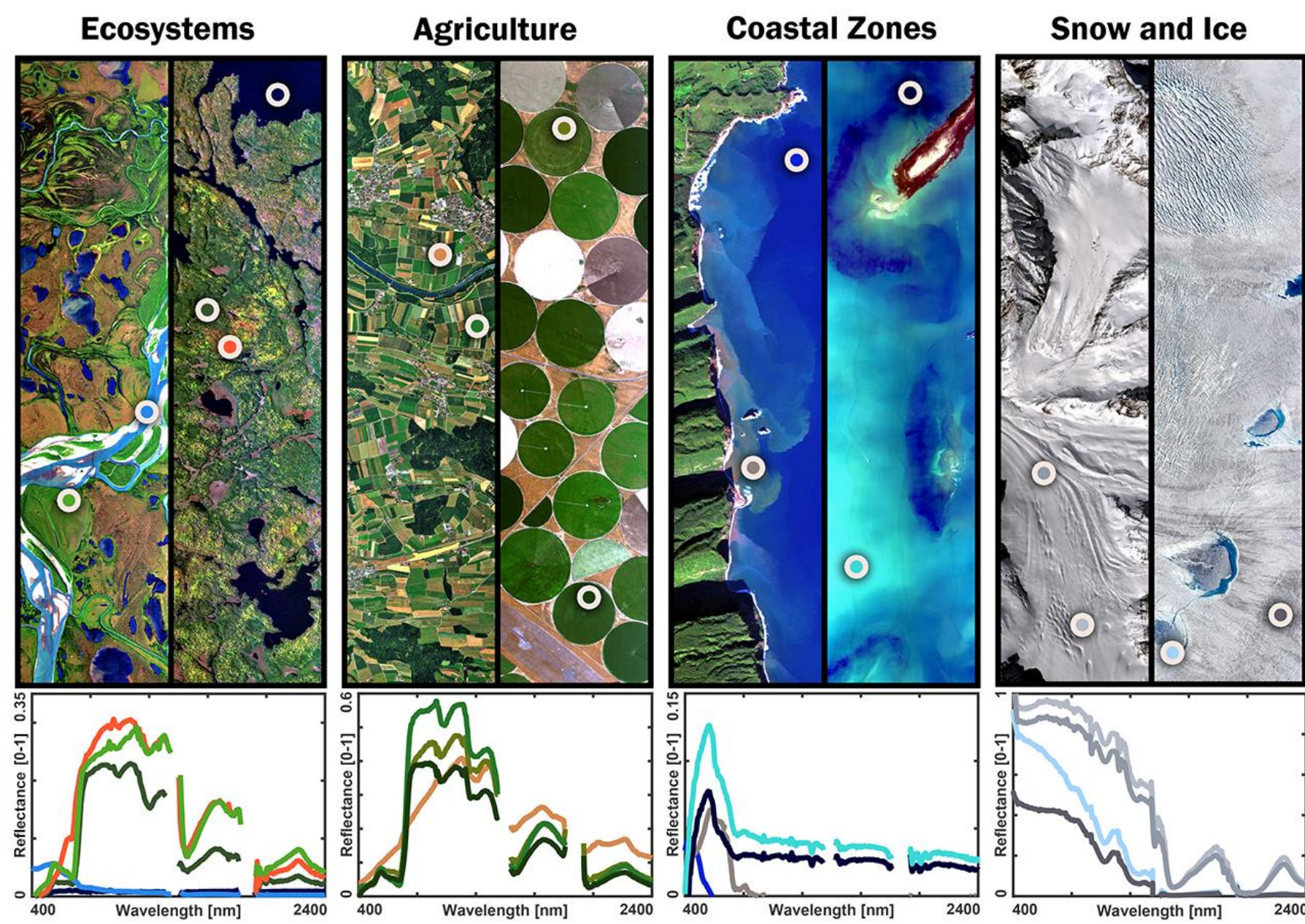
**Harmful algal blooms
(HABs)**

Use-inspired basic research.
A strong emphasis on applied outcomes and data products!!!
Co-developed with local collaborators and end-users.

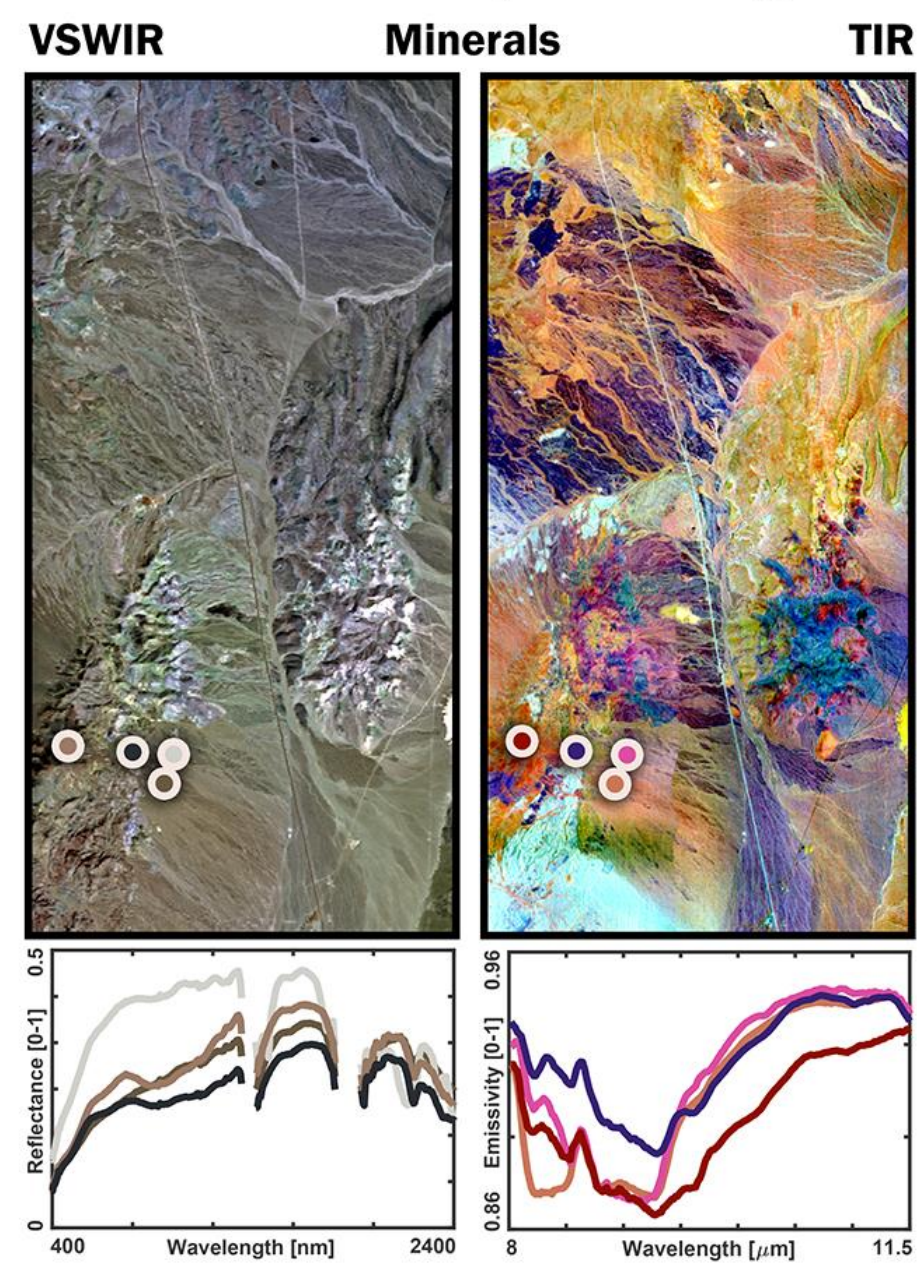


The Future?

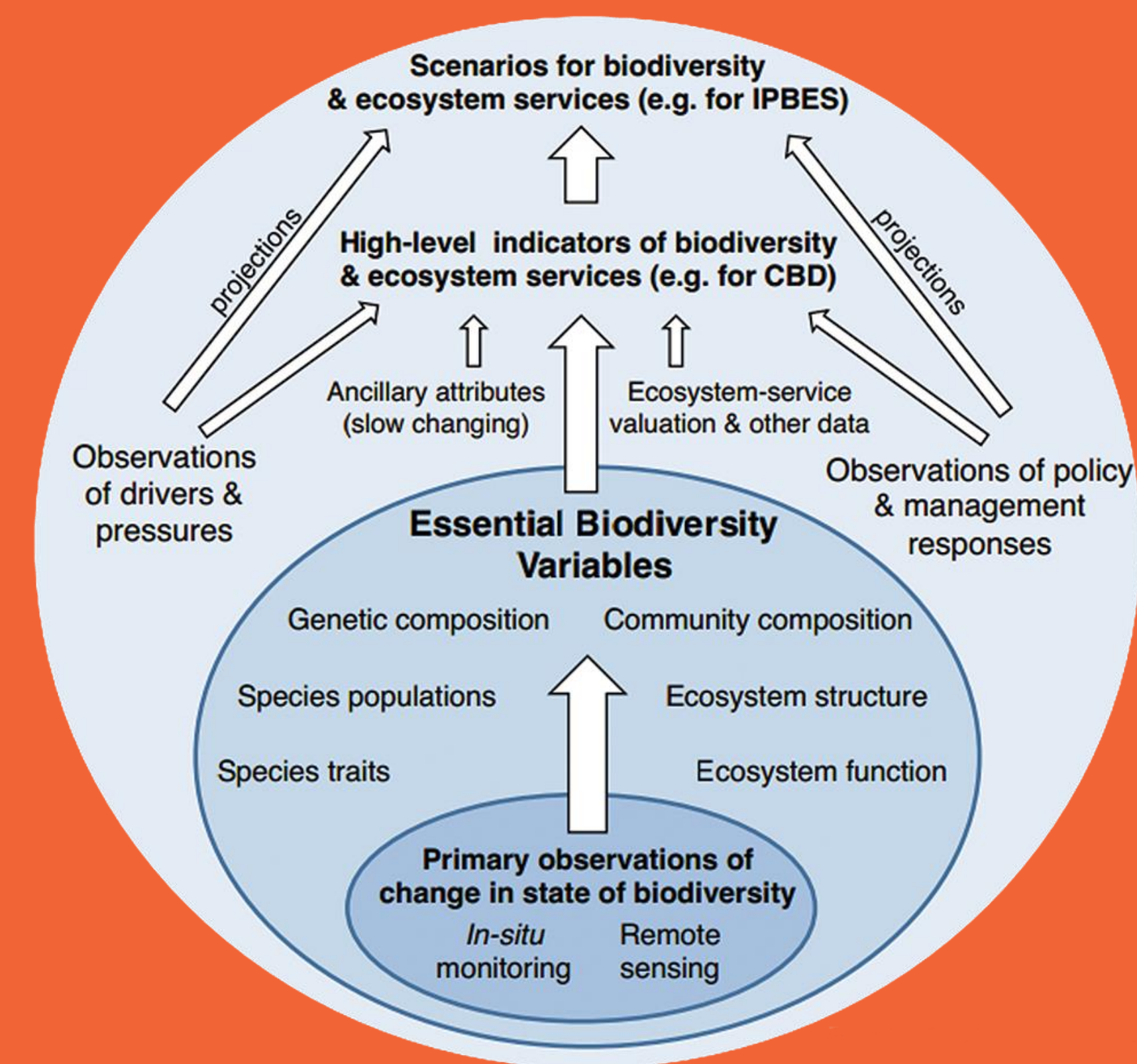
SBG provides data for many focus areas ...



... and will see the world in two critical spectral regions



The Surface Biology and Geology Study (image from sbg.jpl.nasa.gov)



Algorithms for early adoption of satellite imaging spectroscopy (e.g. SBG) for Essential Biodiversity Variables and other applications

E.g. the GEO Global Ecosystems Atlas

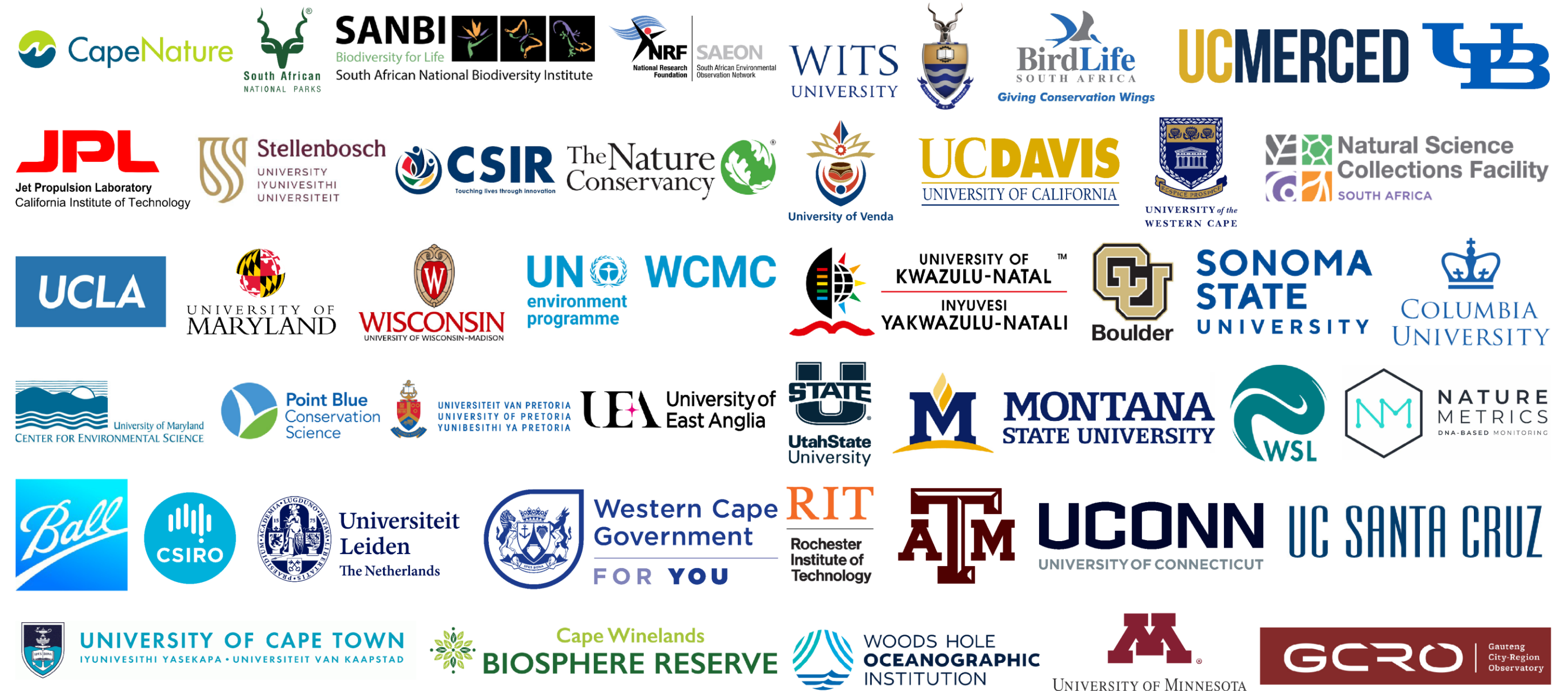
THANKS!!!



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Participating institutions

FUNDERS

