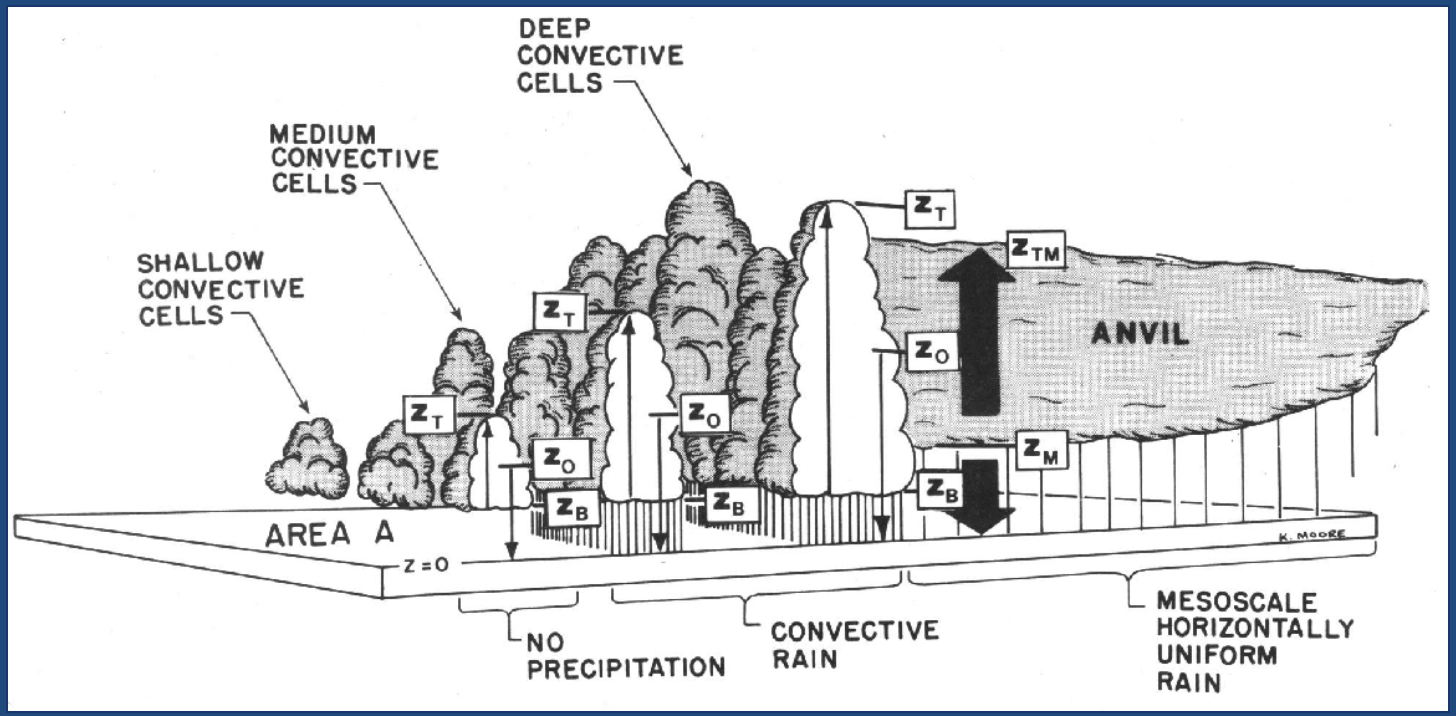
DYNAMO Radar Plan



R. Houze

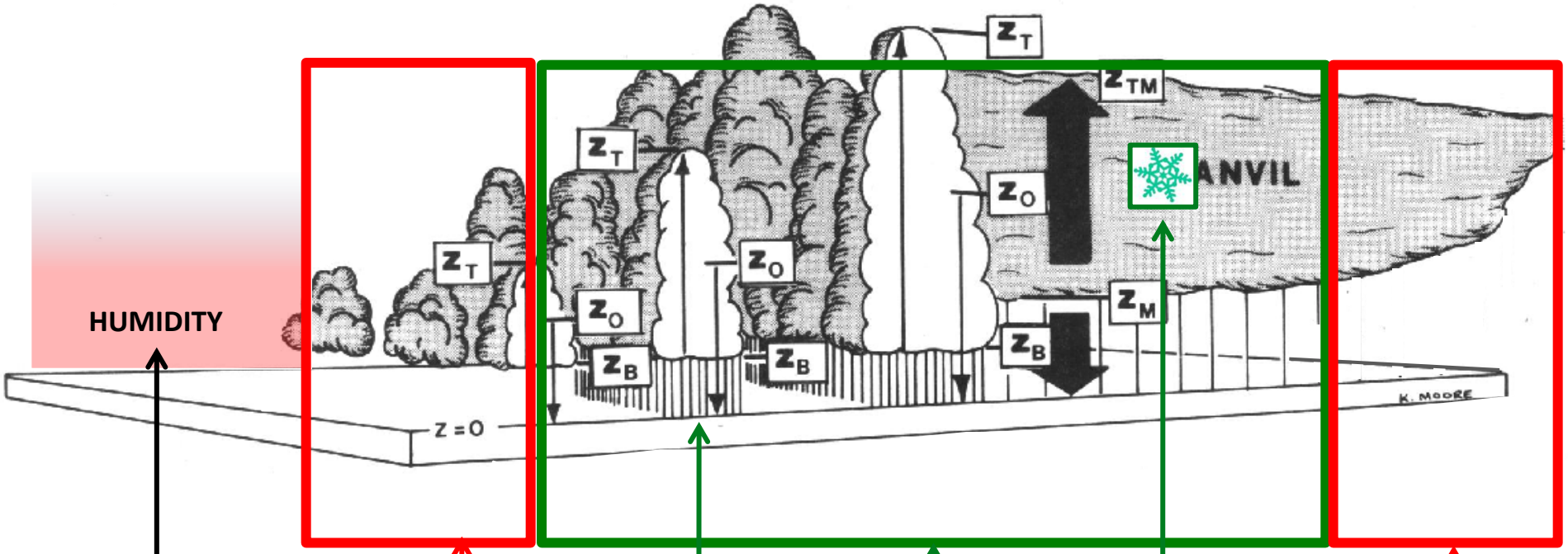
DYNAMO Planning Meeting, Seattle, 6 July 2010

DYNAMO Hypotheses

1. Deep convection can be organized into an MJO convective envelope only when the moist layer has become sufficiently deep over a region of the MJO scale
2. Specific convective population at different stages are essential to MJO initiation
3. Upper ocean processes play essential roles in MJO initiation in the Indian Ocean

DYNAMO **radars** will address 1 & 2

This has never been done!



DUAL WAVELENGTH
Water vapor

MM-WAVELENGTH
Non-precipitating
Cumulus

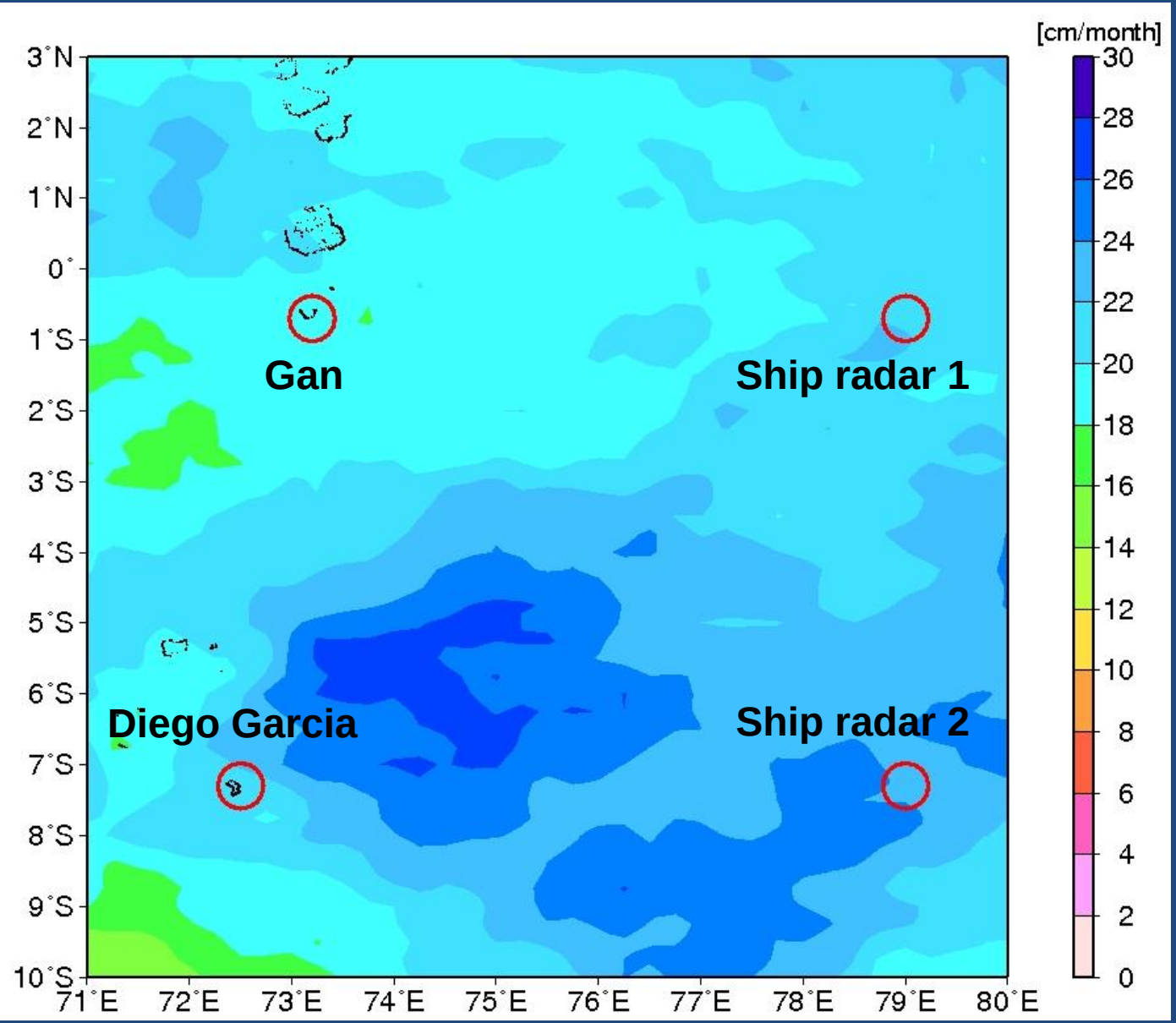
DOPPLER
Air motions

CM-WAVELENGTH
Precipitation

POLARIMETRY
Microphysics

MM-WAVELENGTH
Anvil cloud

DYNAMO observing network and TRMM 3B43 Oct-Dec precipitation climatology



Proposed Radars

AMF2 — Long, proposal to DOE

- **Vertically pointing mm-wavelength Doppler radars (also on ships):**
- **X- band polarimetric Doppler radar**
- **Ka-band polarimetric Doppler radar**

SMART-R — Schumacher, proposal to NSF/JAMSTEC

- **C-band Doppler radar**

S-PolKa — Houze, Medina, NSF facility request

- **S- and K_a-band polarimetric Doppler radar**

Ship radars — Rutledge, Fairall, NOAA ship *Revelle,* Yoneyama, Japan ship *Mirai*

- **C-band Doppler radar**
- **Vertically pointing mm wavelength cloud radar**

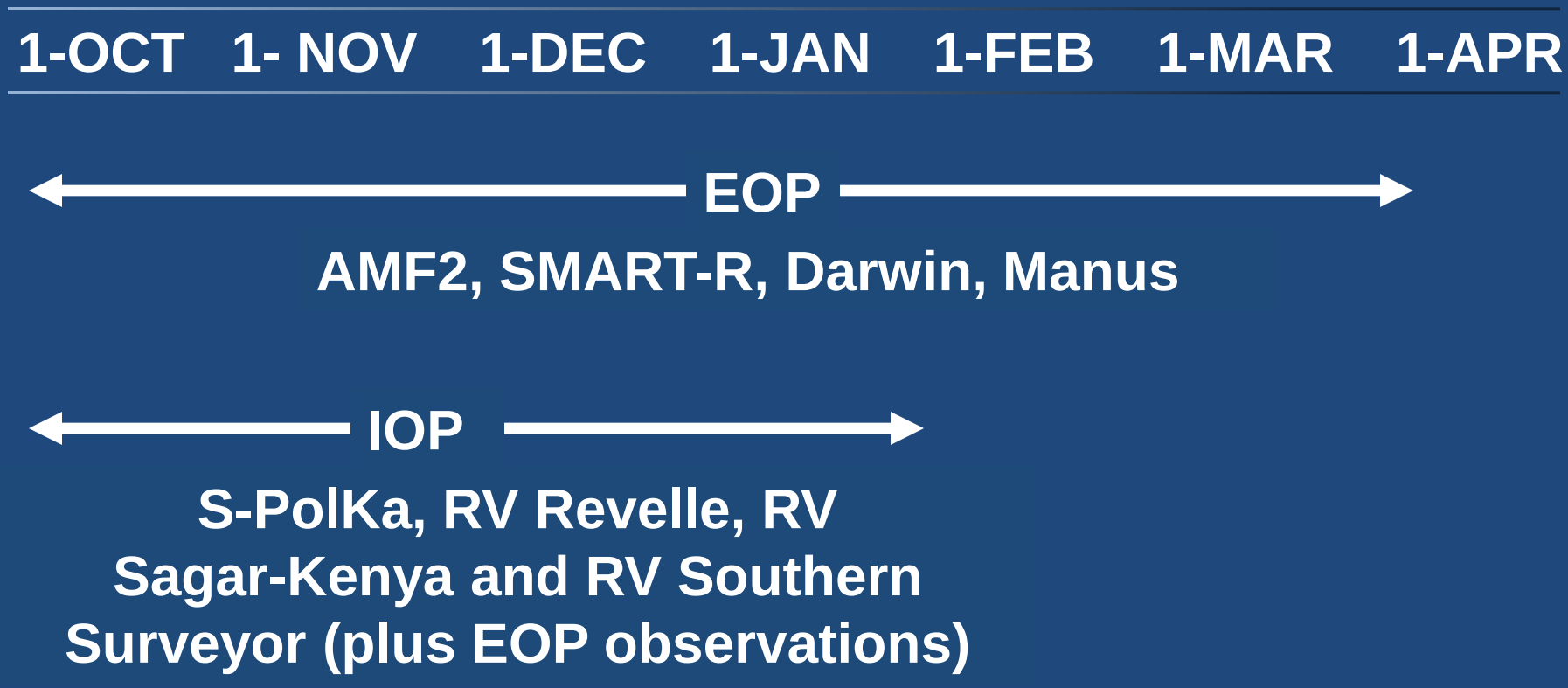
Aircraft radar — Fairall, Brewer, Jorgensen, NOAA request

- **X-band dual-Doppler radar**
- **Lower-fuselage C-band radar**

NOAA S-band profiler? — Williams, NOAA request

Installation sites suggested by survey team

Radar Timeline



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