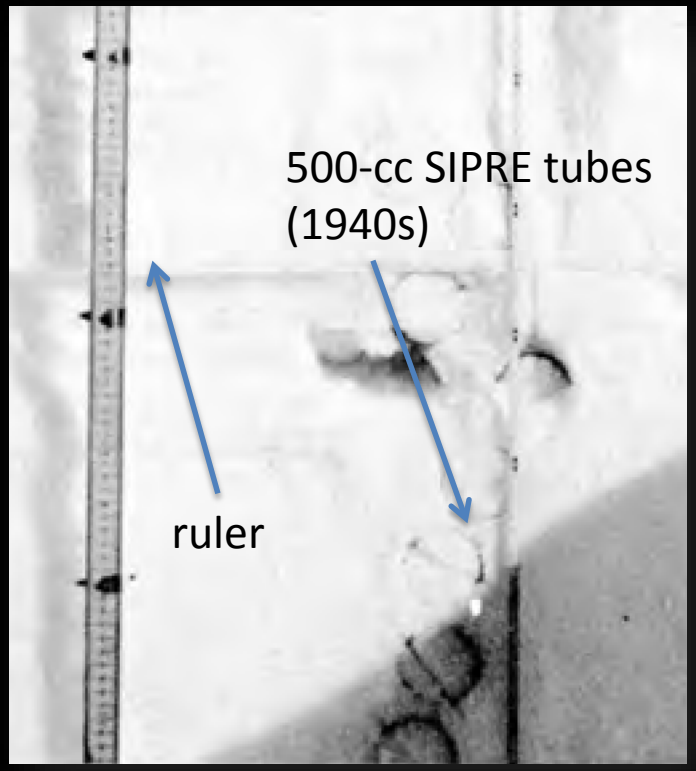
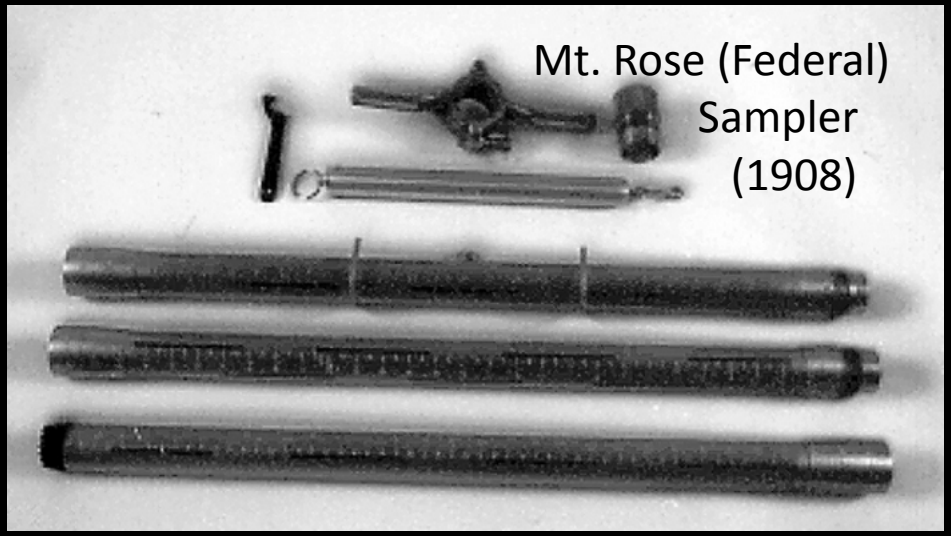
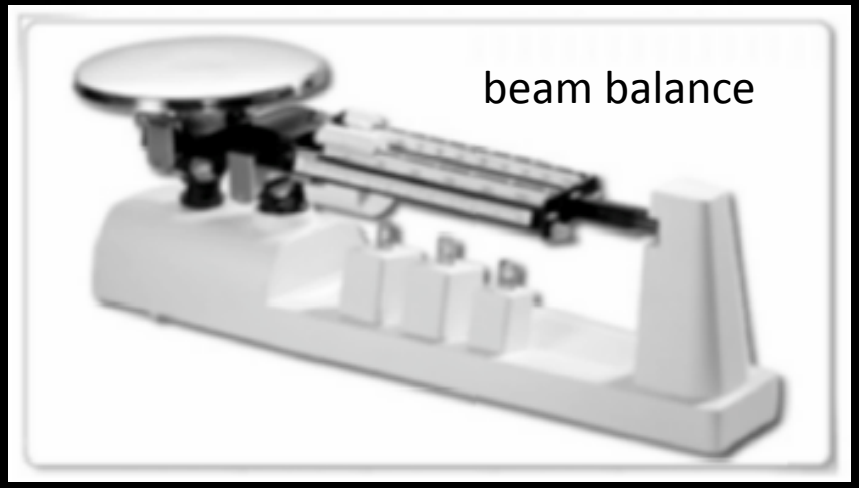
Some thoughts as we head toward a snow space mission....

Matthew Sturm, iSWGR pastchair


500-cc SIPRE tubes
(1940s)
ruler


Mt. Rose (Federal)
Sampler
(1908)


beam balance

depth probe

TOPOGRAPHY
STATE OF NEW YORK
REPRESENTED BY THE
STATE ENGINEER AND SURVEYOR
Ruby Mt.
Peaked Mt.
Slide Mt.
Thirteenth Lake
Balm of Gilead Mt.
Buck Meadow Mt.
Durant Mt.

Source: H. Kostis, NASA Goddard

We have an opportunity we cannot squander.....

- NASA 2017 Decadal Survey likely to assign snow remote sensing highest priority.
- Past concepts for space missions (e.g. SCLP, CoReH_2O) evidence community has ideas, energy, history.
- SnowEX'17 shows momentum.
- Emerging technologies (interferometry, SfM, etc.)
- Motivated NASA program manager.

But there are pitfalls ahead of us.....

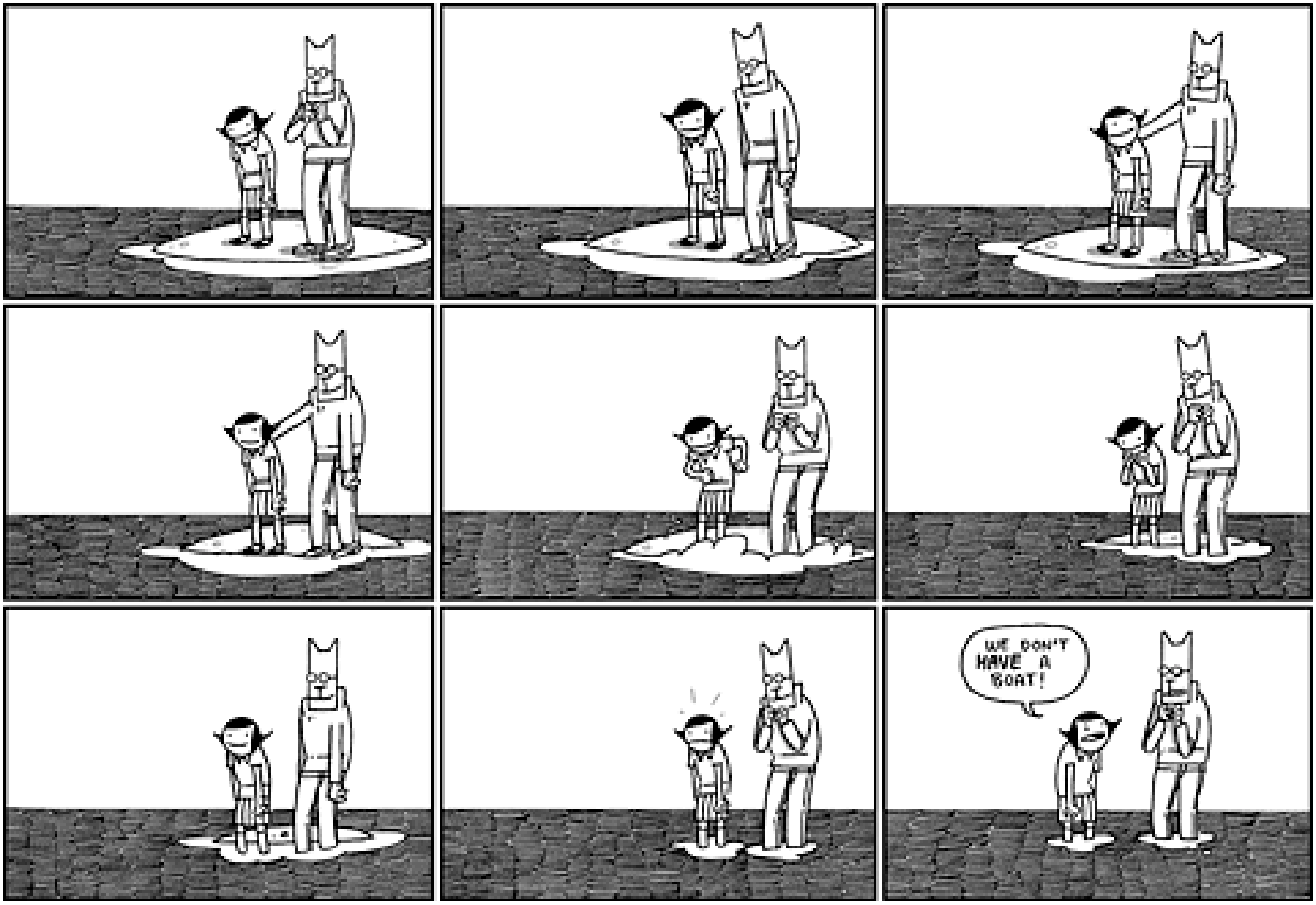
- A community divided about the best path forward.
- Competing needs: water snow vs. climate snow
- Contradictory requirements for potential instruments (e.g., specificity vs. coverage)
- Emerging technologies too new to have demonstrated performance.
- Peer-reviewed documentation for both older and new technology limited.

Past Performance....

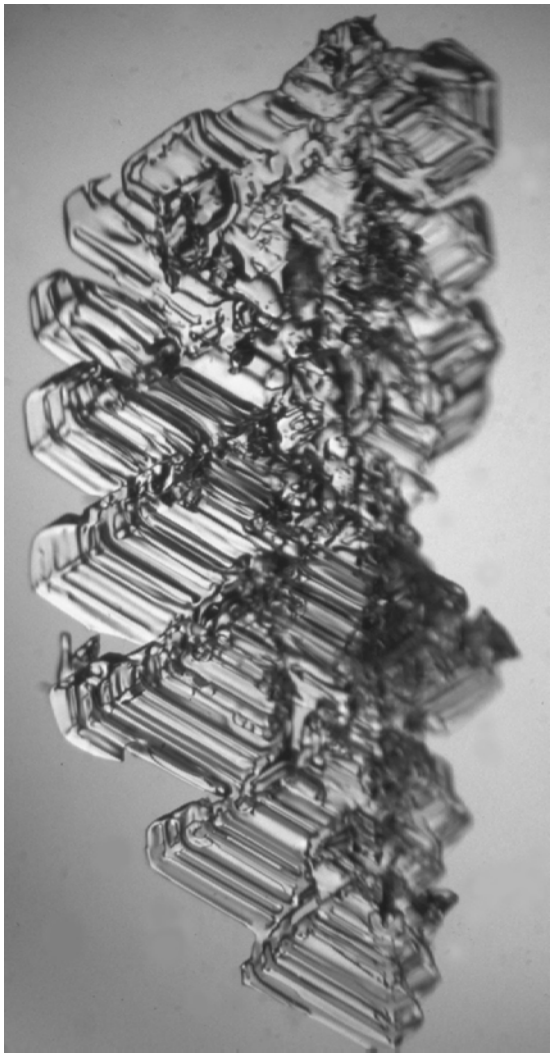
- SCLP in Decadal 2007: seen as expensive w/ wet snow gap and algorithms not mature
- CoReH_2O:Lacking a “killer” SWE vs. backscatter plot & lacking enough friends in the decision room.
- Earth Venture (2 failed submissions): ???

- *Let’s not repeat these performances..*

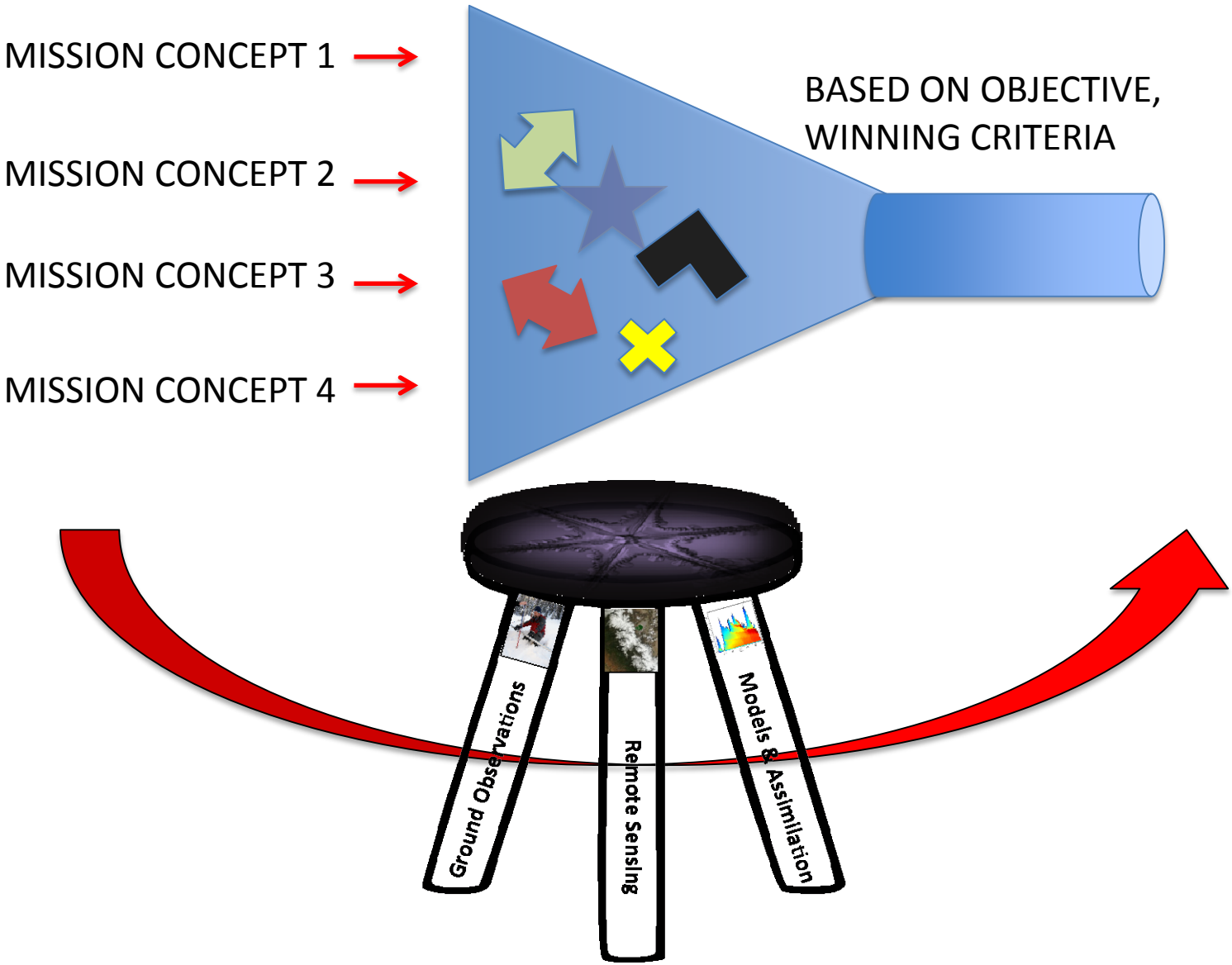
A Rising Tide Lifts All Boats



- Listen
- Respect
- Accept
- Turn-about
- Transparency
- Self-criticality
- Enthusiasm



TRANSPARENT & OPEN

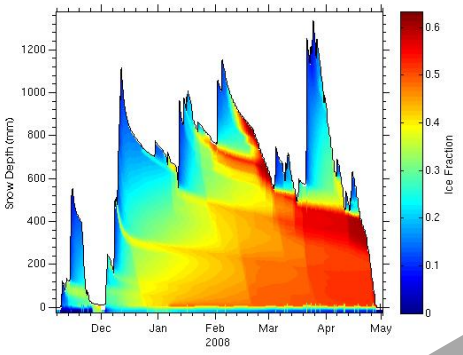


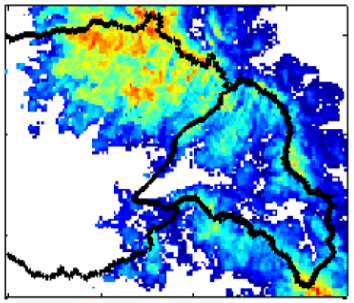
ARRIVEE

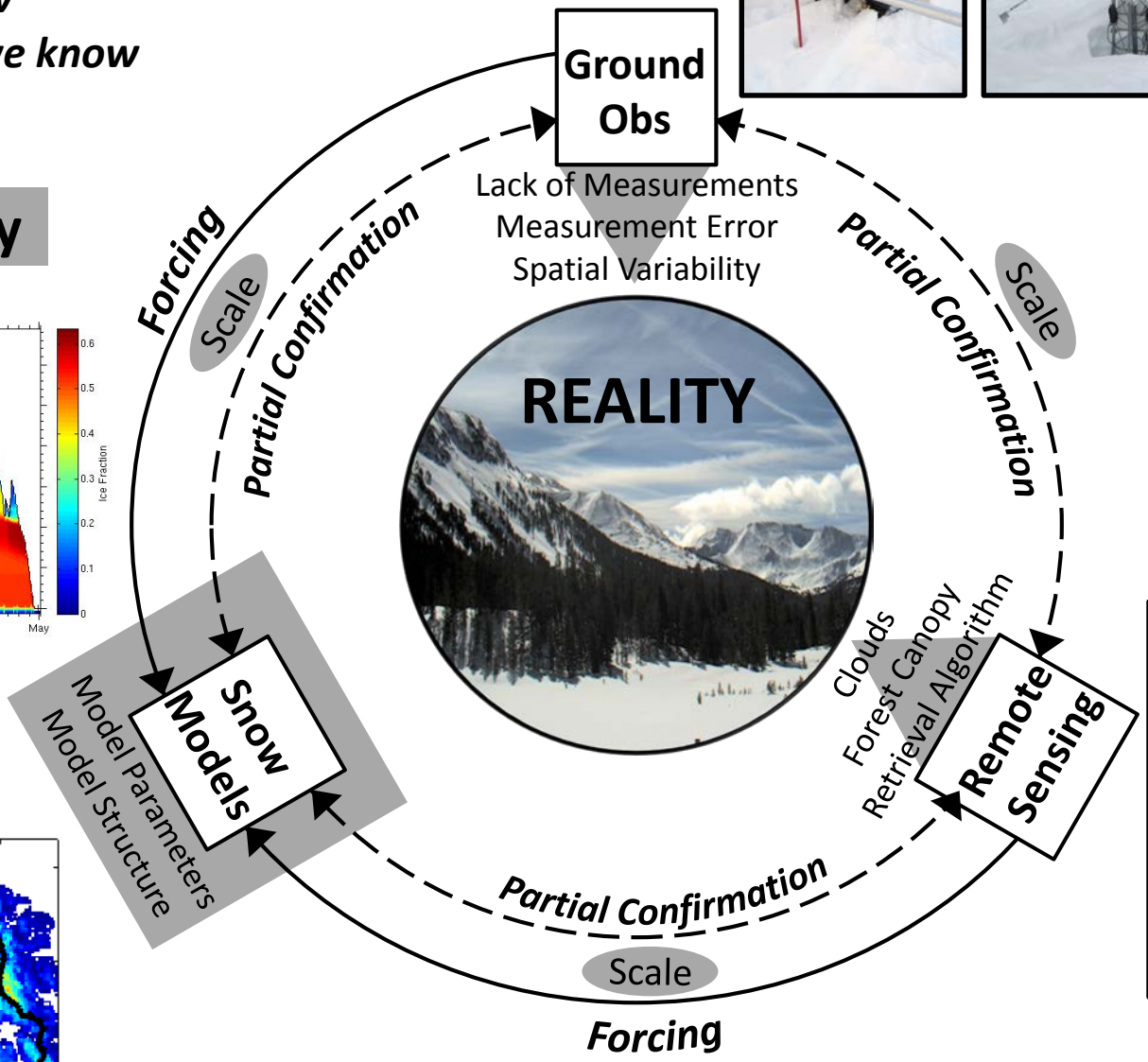
Epistemology and Snow Hydrology

How do we know what we think we know about snow?

Uncertainty







slide from Mark Raleigh