

Alaska Satellite Facility

Dr. Nettie La Belle-Hamer
ASF Director
Interim VC for Research



ASF History in One Slide

- ASF was established in 1991 as a NASA downlink station and processing center for Synthetic Aperture Radar (SAR) data for the U.S. science community
 - AS2 installed and began downlinks in 1991, replaced in 2017
 - AS1 installed and began downlinks in 1995
 - AS3 installed and began downlinks in 2013
 - AS4 installed in 2020
 - AS5 TBD, ground work complete
- ASF established the Enterprise in 2004 with UAF antennas installed in 2013
- ASF has approximately 80 employees across three major contracts
 - ASF DAAC (Data Center with ~11PB SAR data)
 - ASF Ground Station as part of the NASA Near Earth Network
 - ASF Enterprise, home to the GeoData Cooperative



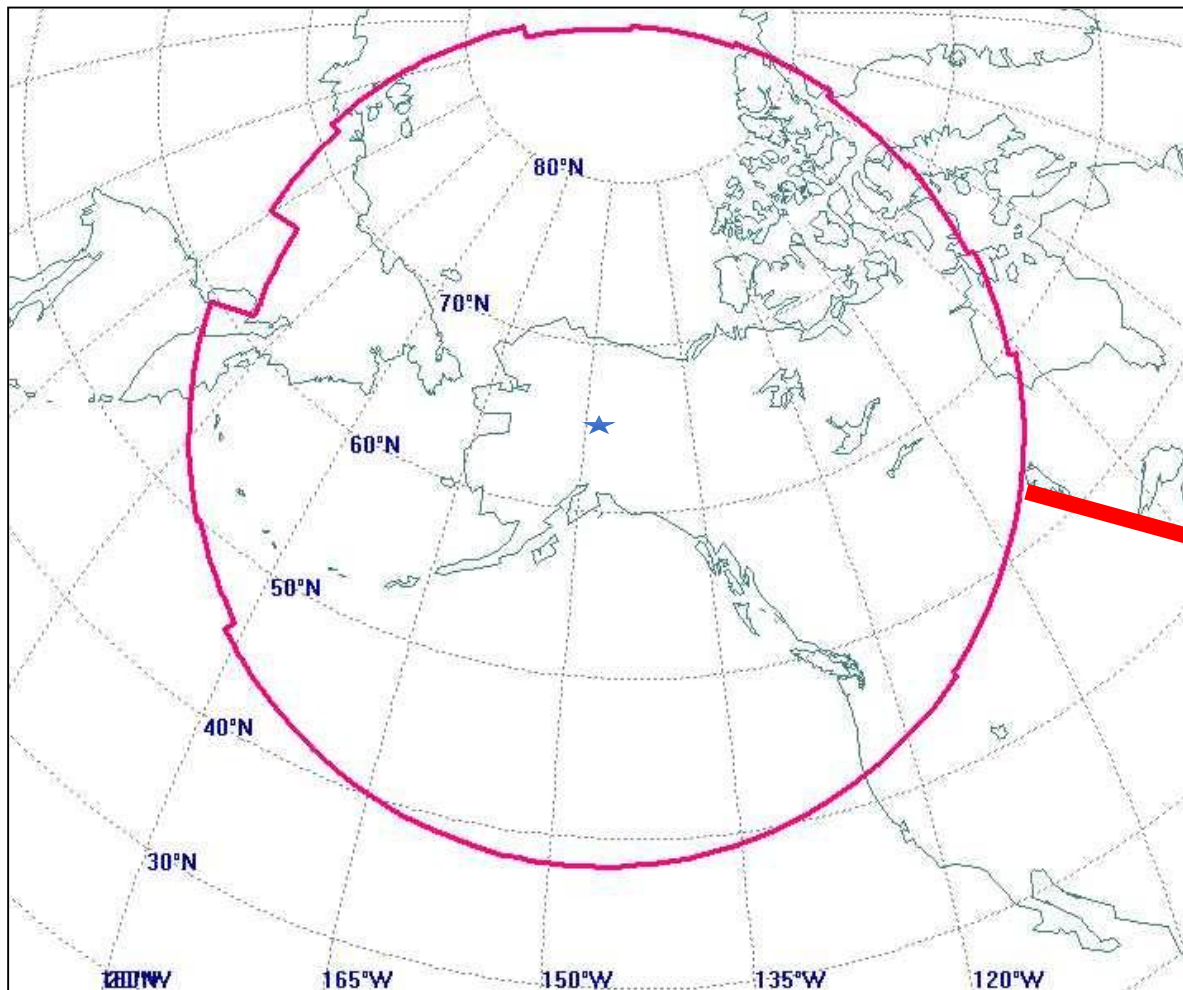
ASF's NASA Ground Station



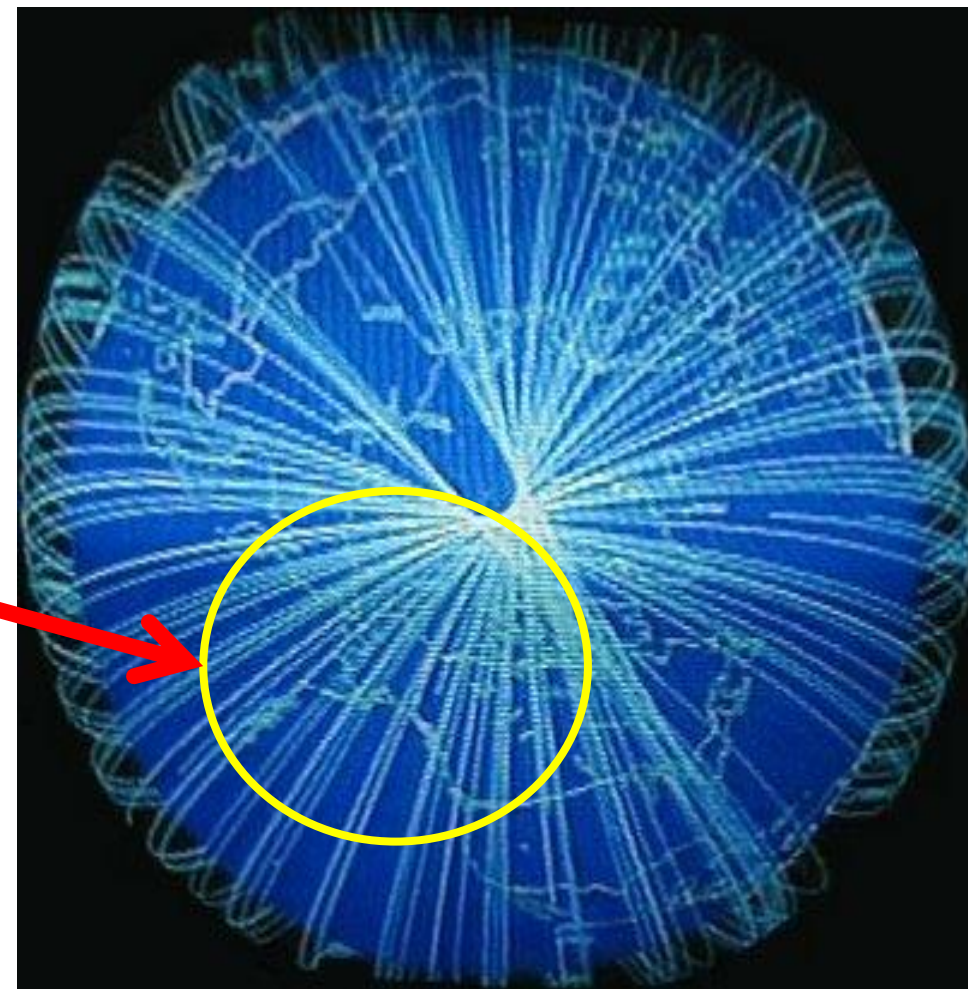
Growing Capacity and Capability

- Up to 40% of NASA polar-orbiting Satellite Data can be downlinked at ASF
- NASA antennas are active 24x7x365
- ASF staff actively operate and repair systems whenever needed
- NASA expanding ASF's antennas to support new missions coming

View Horizon (Mask)



Polar Orbits



11 of 14 Orbits/day

ASF's Distributed Active Archive

- Responsible for all NASA Synthetic Aperture Radar data
 - Currently approximately 11 PB
 - U.S. and International data
 - Hybrid storage requirements -- innovative solutions
- ASF Staff are leading NASA's new technology efforts
 - Agile Development
 - Cloud processing
 - Artificial Intelligence and Machine Learning

A PETABYTE IS A LOT OF DATA

1

PETABYTE



20 MILLION

FOUR-DRAWER FILING CABINETS
FILLED WITH TEXT

1.5

PETABYTES



SIZE OF THE 10 BILLION
PHOTOS ON → **FACEBOOK**

15+

PETABYTES



INTERNET USER'S DATA BACKED UP ON

MOZY.COM

20

PETABYTES



THE AMOUNT OF DATA **PER**
PROCESSED BY **GOOGLE** **DAY**

NASA's NISAR, to be launched in 2023, has an estimated data flow into ASF during mission of **one petabyte every 10 days**

~150 petabytes over three years



ASF Enterprise

- Advanced Product and Data Sales
- Synthetic Aperture Expertise
- Ground Station
- CubeSat Antenna Farm Experiment
- Industry Partnerships
- Creation of the GeoData Cooperative



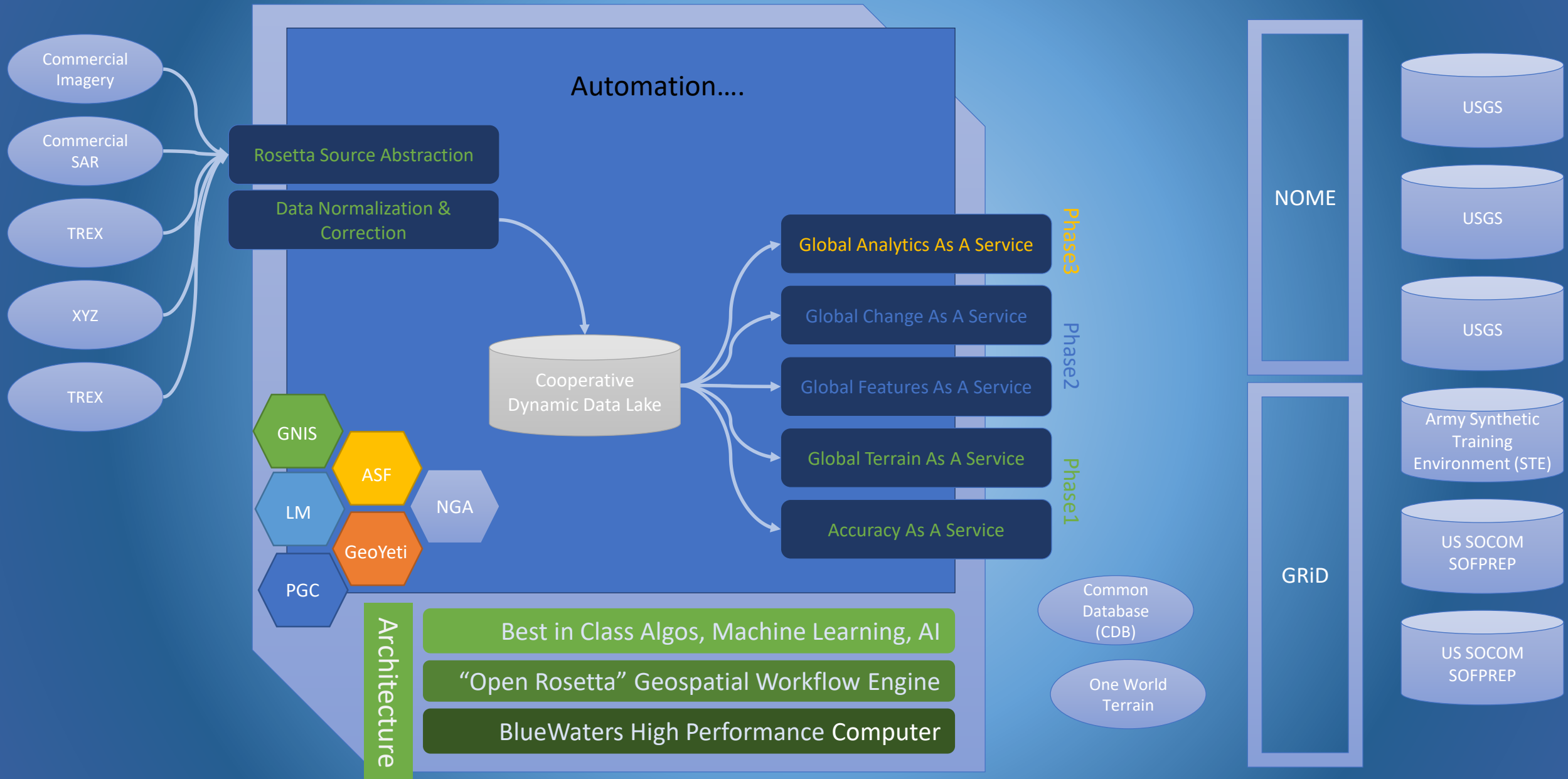
9m Antenna

7.3m Antenna



ASF Enterprise Ground Station

Arctic GeoData Cooperative (FY 24 Vision)



Students are an Integral Part of ASF

- Interns
- Undergraduate Training
- Graduate Mentorship
- Post Doc Partnership
- Employment



