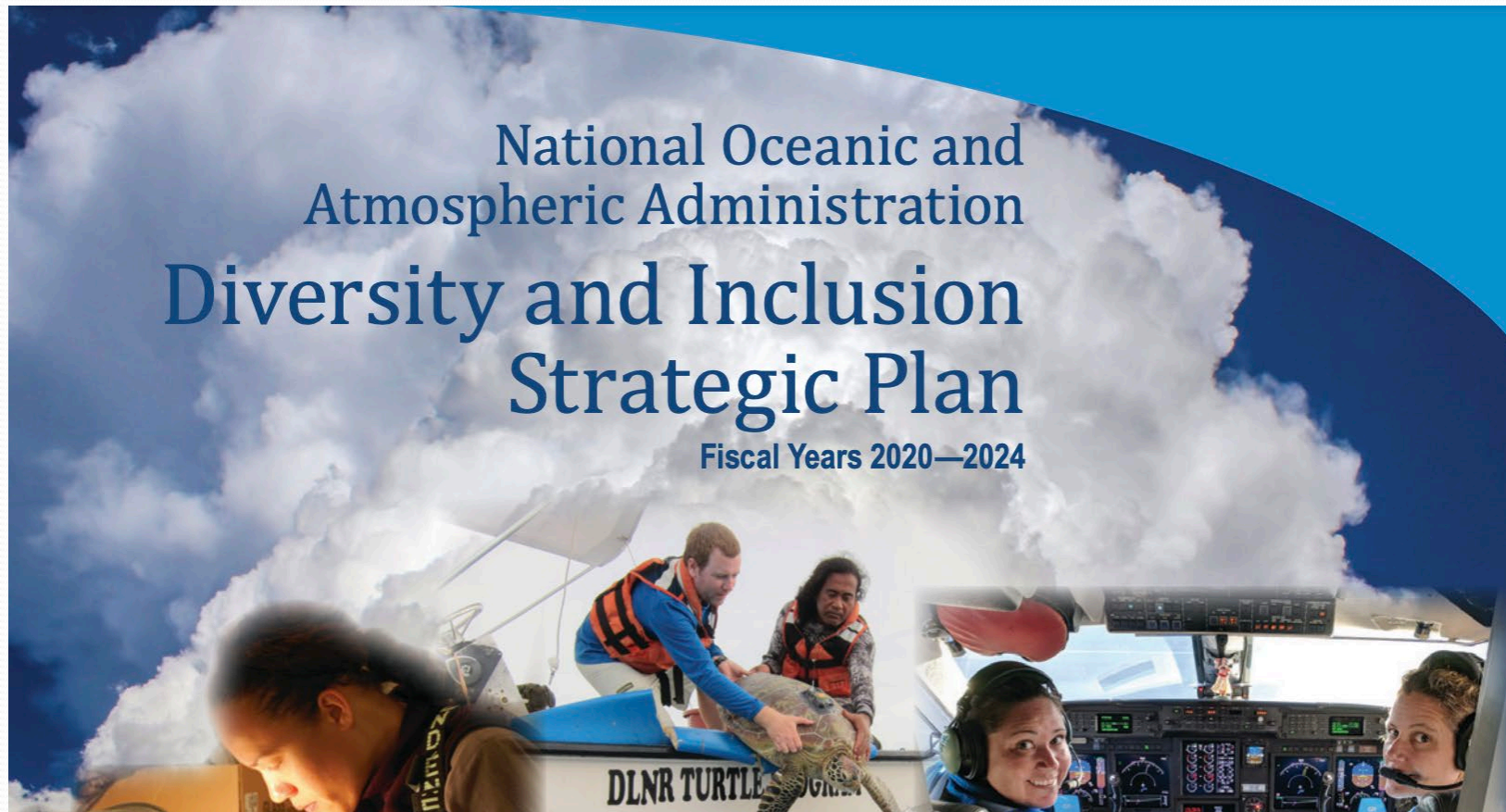




Graduate Support for CI Research at Minority-Serving Institutions

Matt Rogers, CIRA

Overcoming challenges in developing a diverse NOAA workforce



Diverse workforce a critical component of NOAA's future – where to find this workforce?

Minority-serving institutions (MSIs) – excellent source of quality *undergraduate* candidates - who then are heavily recruited by legacy research institutes for graduate programs

Developing *graduate* programs at MSIs – equity issue!

A solution - developing graduate programs with MSI partners

Solution: Fund MS and PhD students, *at MSIs*, co-advised by MSI and CIRA researchers, on CIRA research topics.

CIRA researchers, partnering with NOAA CSCs, identify MSI faculty for collaborative research. MSI faculty identify student candidate and, with CIRA researcher, lines out research project.

CIRA evaluates candidates on likelihood of success and external funding

CIRA-internal funding for two programs every two years, partner with CSCs for MSI access



Inaugural program selectees



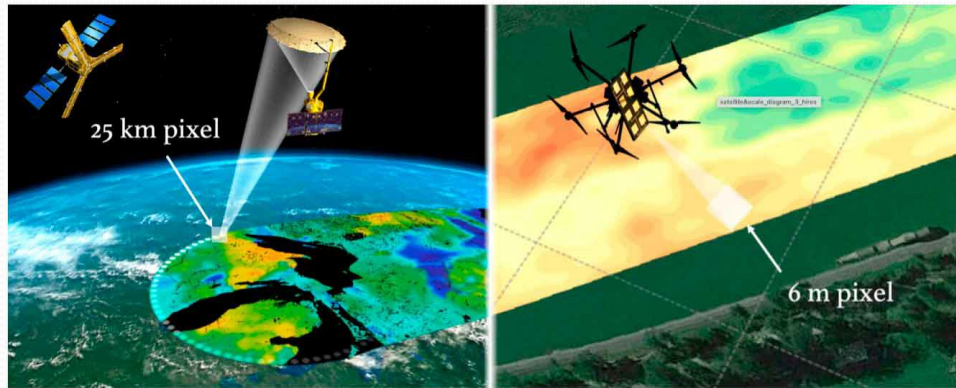
Prof. Hernan Moreno-Ramirez, UTEP
(CIRA Advisor: Chris Kummerow)
Students: Andres Monsalve Salazar
Topic: Drone-based hydrology observations



Prof. Nir Krakauer, CCNY
(CIRA Advisor: Matt Rogers)
Student: Elaine Famutimi Valdez
Topic: AI-based solar power forecasting for Puerto Rico



Outcomes from inaugural program

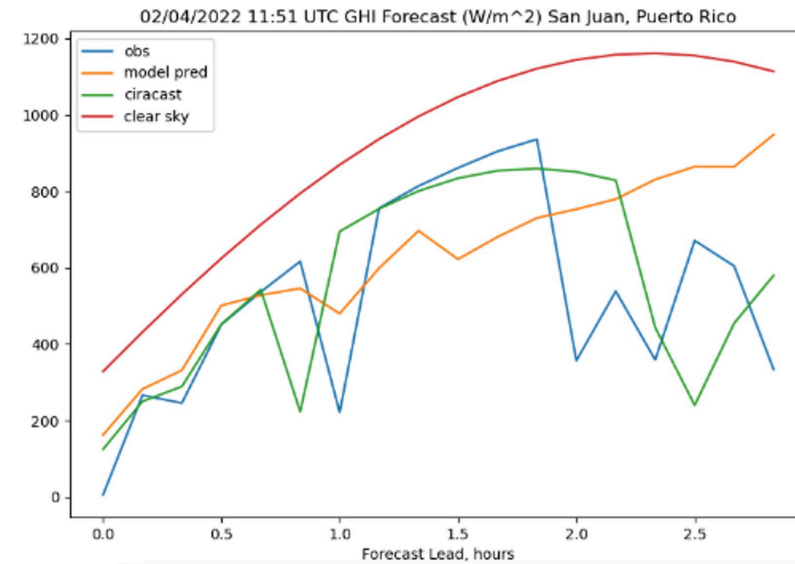


Results from pilot program

UTEP program – continuing under external funding, PhD anticipated for candidate Monsalve Salazar

CCNY program – successful MS defense on 19 May 2022, candidate Famutimi Valdez has job offer from DisasterTech, is weighing other options

2023 program under preparation at this time



Introduction: Existing Forecasting Models

- Numerical Weather Predictions (NWP) are commonly used.
 - Based on current weather data by defining a three-dimensional grid.
 - Sometimes coupled with satellite information.
 - Forecasts cloudiness from two to six days ahead, although not accurately.
- CIRACast
 - Uses cloud properties from satellite observations, 4D wind fields from NWP, and a radiative transfer code.
 - Defines cloud groups using a weighted score.
 - Limitations: cloud macrophysical and microphysical invariance, cloud tearing.



Challenges



Funding – always an issue.

Mentorship – coordination of ‘remote’ graduate program, need to find mentors with valuable CI-related research who also understand the unique challenges by first-of-their-kind graduate students. Coordination of resources with new stand-up programs – need to leverage CI resources at a level consistent with ‘in-house’ students.

DEI Programs Under Attack – funding/legal issues at host universities. Moral responsibilities, just and unjust laws.

Towards a more diverse and just CI and NOAA Workforce

CI-driven approach provides more flexibility (especially related to challenges related to legal/social issues.) Innovation in programs, and more direct connection to MSI and academic resources. In-house training for DEI topics and support for students, even remote.

Cons: funding

NOAA support – would be so helpful! Diverse workforce has long been a NOAA priority, access to NOAA products and services. *CI-driven support is a mechanism to achieve this* – with NOAA support!

Diverse experiences and ways of thinking improve CI research and *will* improve NOAA research





Thank you – questions?

CUNY CREST
SCIENCE & TECHNOLOGY TO SUSTAIN THE EARTH



ELAINE O. FAMUTIMI

“ Working on my graduate research improved my programming skills tremendously. I also had stage fright but going to conferences under the institute really helped me develop my presentation skills. ”



The City College
of New York

Masters in Environmental Engineering, CCNY
NOAA Cooperative Institute for Research in Atmosphere



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