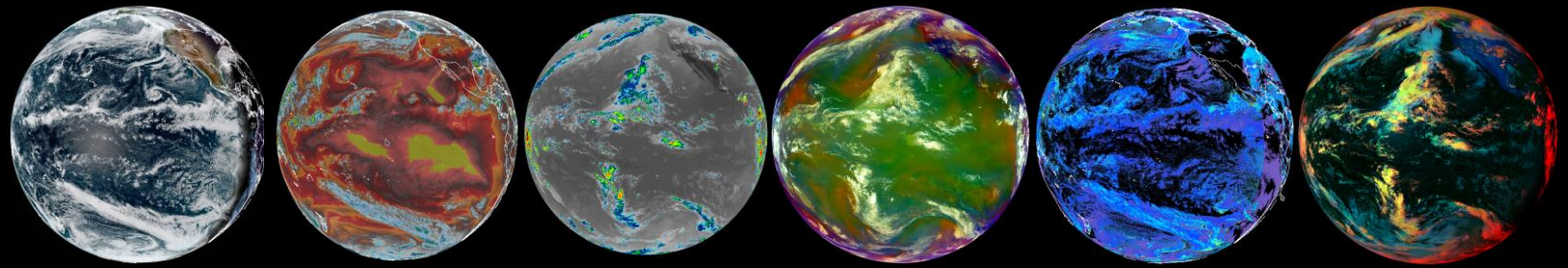
NIMBUS AI

Solar Intelligence Services

Day-Ahead Solar Forecasting Prize

AMERICAN MADE SOLAR PRIZE

U.S. DEPARTMENT OF ENERGY



Nimbus AI GOES-17 multispectral profile

Nimbus AI Team

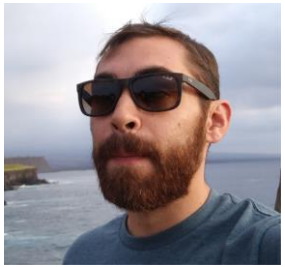
Geoff Galgon, PhD
CEO & COO

Peter Sadowski, PhD
Chief Analytics Officer

Assistant Professor
UH Computer Science

Giuseppe Torri, PhD
Chief Science Officer

Assistant Professor
UH Atmospheric Science



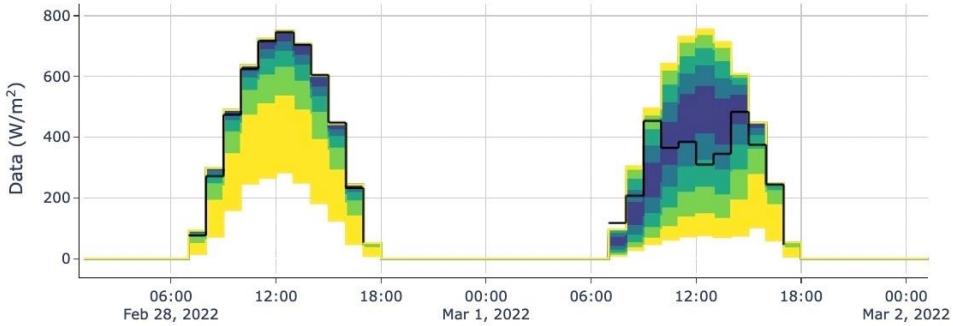
Kyle Hart
Systems Lead

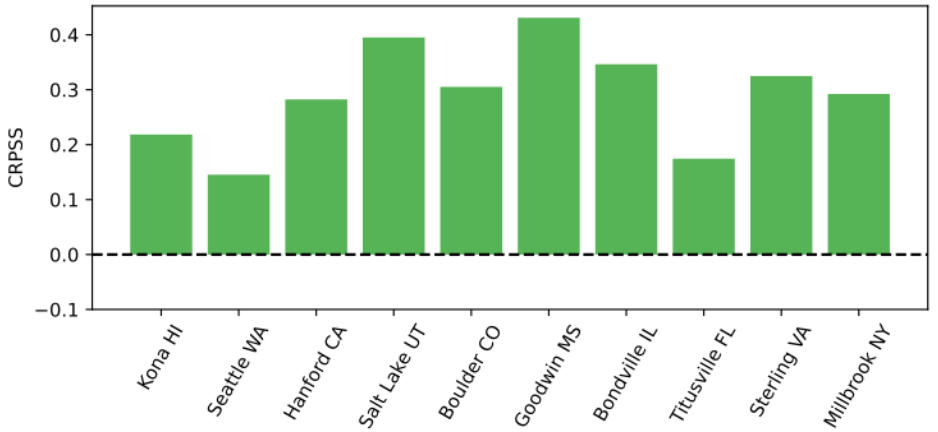
UH Staff Scientist

Solar Forecasting Prize Modeling Team

Forecasting Prize: Performance

- Model approach **much better** than baseline:
  - Only competitor to beat baseline at all sites.
  - Lessons learned throughout the competition led to increased final model performance.

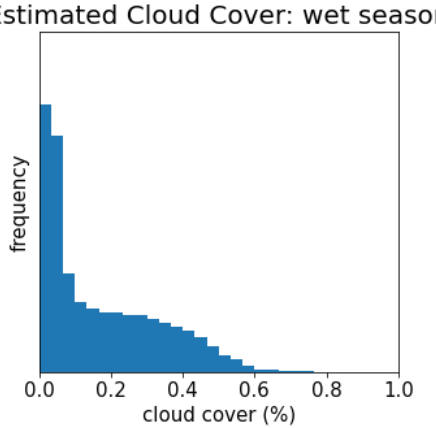




Forecasting Prize: Lessons Learned

Probabilistic Forecasting

- Use CRPS or other **proper scoring** to discourage hedging
- Model densities should reflect spatiotemporal **structured uncertainty**.
- Real dispersion characteristics **are not captured** by NWP ensembles.



NWP (GFS) Variables

- GFS **input variable selection** is important.

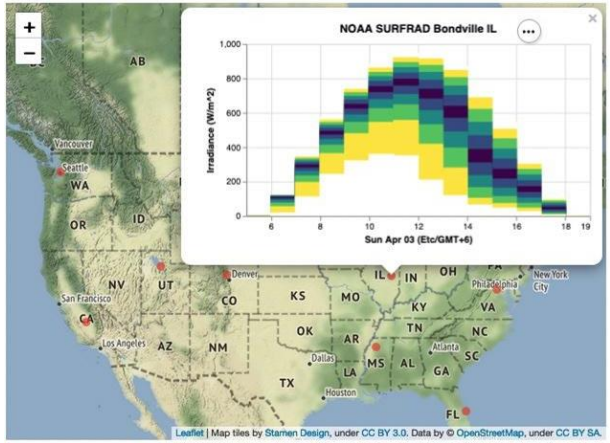
Geography & Clear-Sky Model Inputs

- Clear-sky models under/over-estimate irradiance by as much as 10%.

Future Plans: Forecasts Commercialization

Probabilistic day-ahead forecasting across the Americas and Pacific

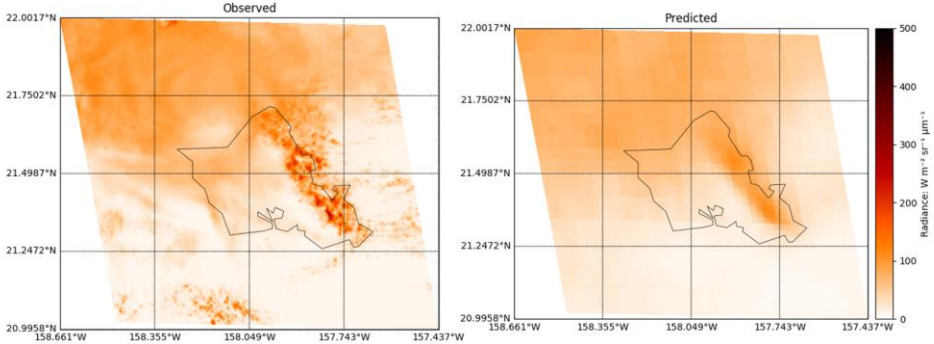
- API-based probabilistic forecasting for contiguous US in Q3 2022. Electricity market participant focused.



Solar Forecasting Day-Ahead Dashboard: Forecasting Prize Sites

Nowcasting services

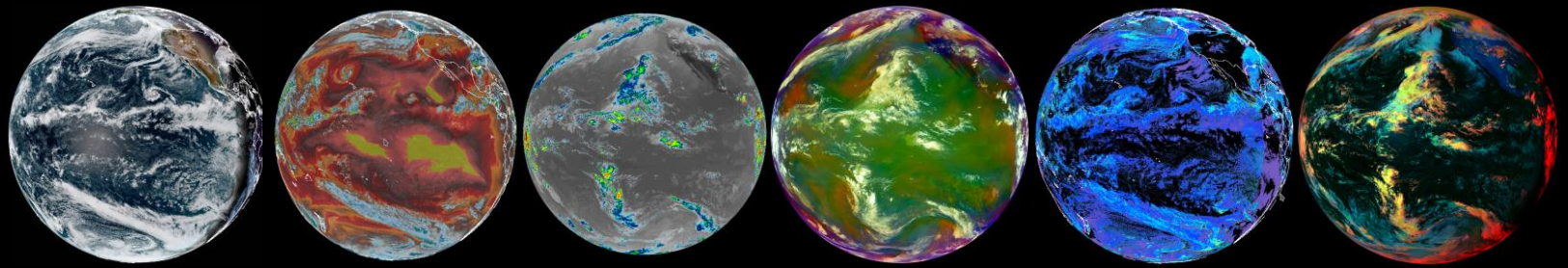
- ML-based nowcasting: 10–60+ minute time horizon.



Observed vs. Nimbus AI 60-min nowcasts: Island of O‘ahu

Thank you

Contact: geoff@nimbus.solar



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