

CDRs answering societal questions...

- Food insecurity affects 1 in 10 people globally.
 - 820 million people worldwide are undernourished
 - USAID Food For Peace spent \$3.6 billion in food aid
- How does USAID FFP make informed decisions?
 - Little to no *in situ* data to identify increasing food insecurity
 - Derive precipitation and maximum temperature from a NOAA CDR
 - Requires current data in the context of past



→ CDRs support food security by providing reliable and consistent data with context

Funk, C., S., et al., 2019: [Recognizing the Famine Early Warning Systems Network: Over 30 Years of Drought Early Warning Science Advances and Partnerships Promoting Global Food Security](https://doi.org/10.1175/BAMS-D-17-0233.1). *Bull. Amer. Meteor. Soc.*, **100**, 1011–1027, <https://doi.org/10.1175/BAMS-D-17-0233.1>

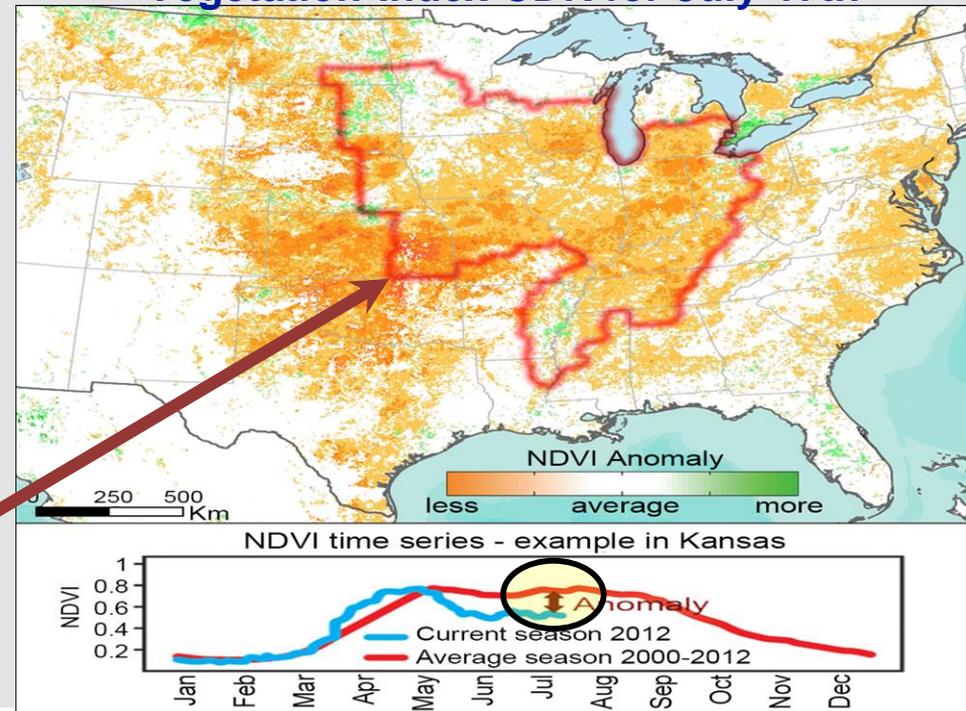
NOAA CDRs Supporting Farming / Agribusiness

Enables understanding of anomalies and discovery of analogs.

- Subset of 5-km resolution, “wall-to-wall” global NDVI CDR.
- Historical record from **1981-to Present**.
- Env. Variables Also Available:
 - Surface Reflectance
 - Leaf Area Index (LAI)
 - FPAR (photosynthetically active radiation)

Primary U.S. Corn and Soybean Production Region

2012 U.S. Drought as depicted using Vegetation Index CDR for July 17th



Studying the Effect of COVID-19 Pandemic on Aerosol Optical Thickness (AOT) over the East Coastal Ocean of Asia Using AVHRR AOT Climate Data Record (CDR)

- **Summary**

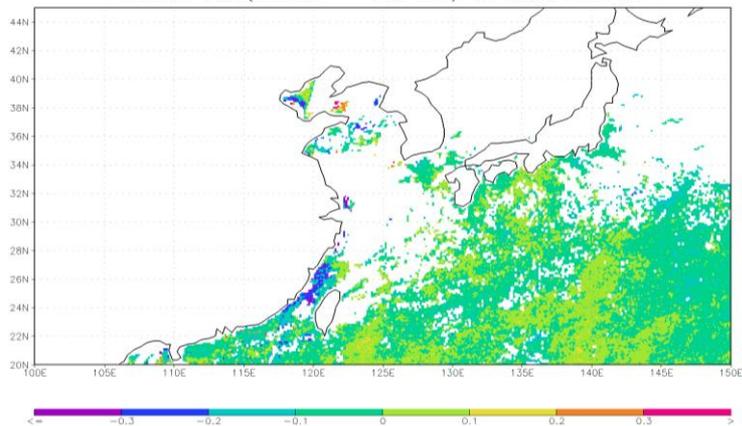
- ✓ AVHRR AOT CDR is used to examine the effect of COVID-19 Pandemic on aerosol loading over the east coastal ocean of Asia for January, February, and March of 2020 since this oceanic region is heavily influenced by the offshore aerosols from the Asian continent.
- ✓ Aerosol loading reduction over the east coastal ocean of Asia is evident in the regional AOT monthly difference maps between 2020 and 2019 for January, February, and March.
- ✓ Aerosol loading reduction over the east coastal ocean of Asia is evident in the regional AOT monthly difference maps between 2020 and long-term climatology for January, February, and March.

- **Conclusion**

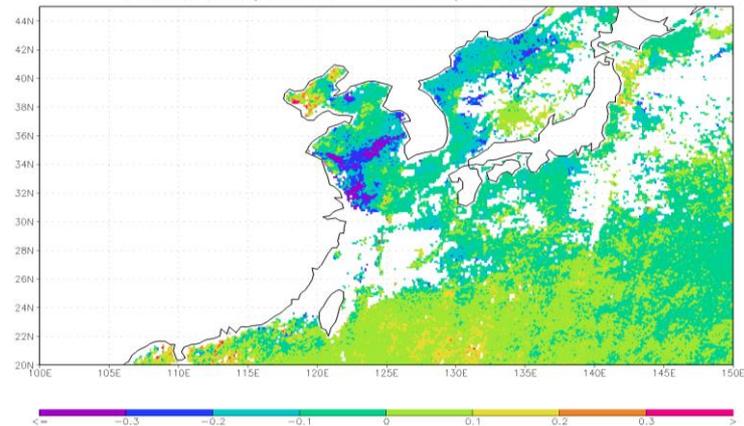
- ✓ The monthly AOT values do decrease over the east coastal ocean of Asia during the period of COVID-19 Pandemic (especially in February and March of 2020), which is probably due to reduced emissions associated with much less human activities because of lockdown protection measure for blocking the spread of the virus.

AOT Global Monthly Difference Maps for Jan., Feb., March between 2020 and 2019 (over the East Coastal Ocean of Asia)

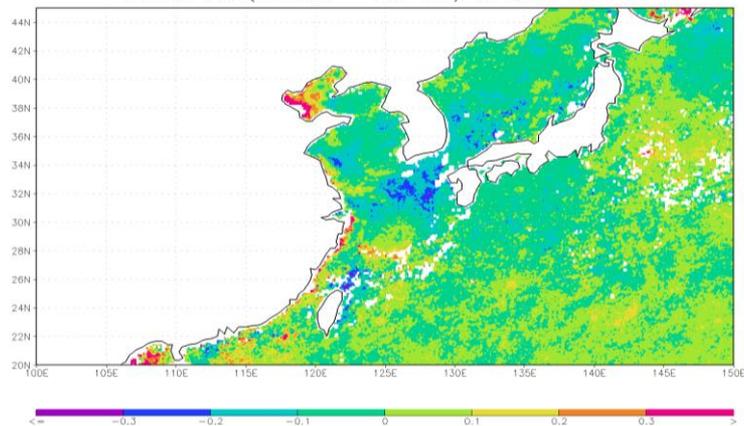
AVHRR AOT(2020.1 - 2019.1) at 0.63 micron



AVHRR AOT(2020.2 - 2019.2) at 0.63 micron



AVHRR AOT(2020.3 - 2019.3) at 0.63 micron



AOT Global Monthly Difference Maps for Jan., Feb., March between 2020 and Climatology (over the East Coastal Ocean of Asia)

