MODIS/VIIRS Long-term Reservoir Products

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MODIS Reservoir Products (C61):

8-day water images (MOD28A2, PGE198):
- 8-Day 250m SIN Grid water presence, QA

8-day time series (MOD28C2, PGEXXX):
- 8-Day VDATA area, elevation, and storage

monthly time series (MOD28C3, PGEYYY):
- Monthly VDATA evaporation rate, evaporation volume, area, elevation, and storage

Status and Updates:
- All of the MODIS based algorithms have been developed and validated
- PGE198 was developed in May 2020, and is under testing; release expected in Dec 2020
- PGEXXX will be developed in Aug 2020; release expected in Feb 2021
- PGEYYY will be developed in Oct 2020; release expected in Apr 2021

VIIRS Reservoir Products (C2):

8-day water images (VNP28A2, PGE698):
- 8-Day 375m SIN Grid water presence, QA
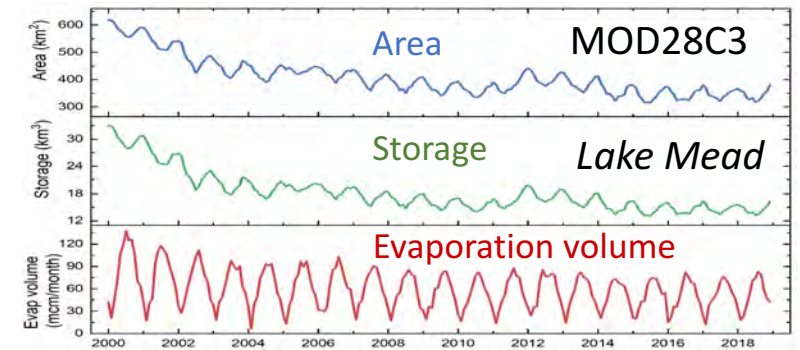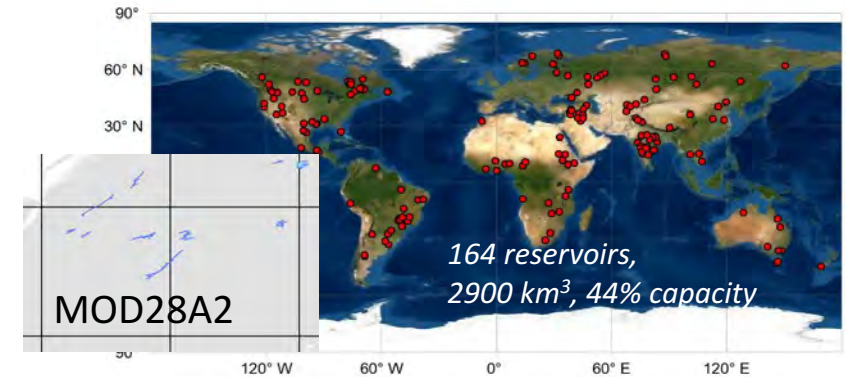
8-day time series (VNP28C2, PGE-tbd):
- 8-Day VDATA area, elevation, and storage

monthly time series (VNP28C3, PGE-tbd):
- Monthly VDATA evaporation rate, evaporation volume, area, elevation, and storage

Status and Updates:
- VIIRS algorithms are essentially the same as MODIS algorithms, with some parameter values differ
- PGEs for the VIIRS products will be developed by leveraging the MODIS PGEs (at about 3-mo time lag)

Recent Publications:

- Li, Y., H. Gao, G. Zhao, and K. Tseng, A high-resolution bathymetry dataset for global reservoirs using multi-source satellite imagery and altimetry, *Remote Sensing of Environment*, Vol. 244, 111831, 2020.
- Zhang, S. and H. Gao, Using the Digital Elevation Model (DEM) to improve the spatial coverage of the MODIS based reservoir monitoring network in South Asia, *Remote Sensing*, 12, 745, doi:10.3390/rs12050745, 2020.
- Zhao, G. and H. Gao, Estimating reservoir evaporation losses for the United States: Fusing remote sensing and modeling approaches, *Remote Sensing of Environment*, Vol. 226, 109-124, 2019.

MOD28A2

164 reservoirs, 2900 km³, 44% capacity

MOD28C3 — Area, Storage, Evaporation volume, *Lake Mead*

Averaged reservoir evaporation rate (2000-2018)

Evaporation rate (mm/d) 0.0 6.6