

## New MODIS Land Products added in 2017

### Collection 6:

- MCD18A1: MODIS/Terra+Aqua Daily L3 5km DSR SIN Grid
- MCD18A2: MODIS/Terra+Aqua Daily L3 5km PAR SIN Grid

### Collection 61:

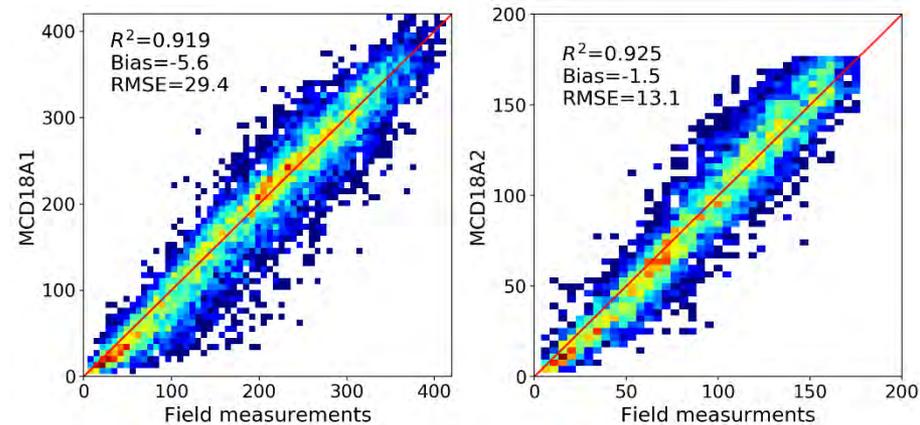
- Under processing
- MCD18A1, MCD18A2: 1km
- MCD18C1, MCD18C2: CMG, 0.05°

## Status and Updates:

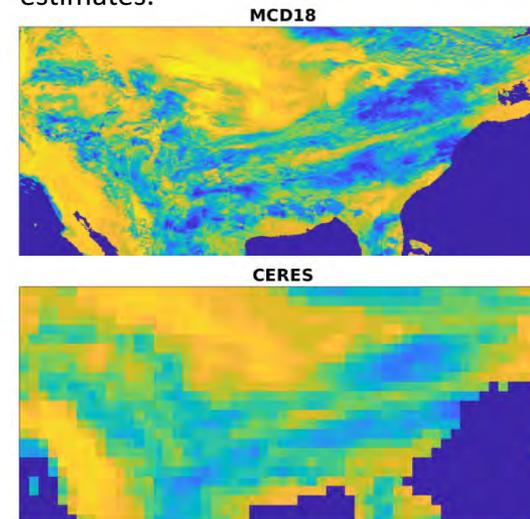
- Changes in MCD18 C61
  - Fixed known programming errors
  - Spatial resolution improved from 5km to 1km
  - New 0.05° CMG products of DSR and PAR
  - Enhanced look-up tables (LUT)
- Extensive evaluation of MCD18 C6 products
- Alternative retrieval algorithms developed
  - Parameterization
  - Optimization-based
  - Machine learning

## Recent Publications:

- Wang, D., Liang, S., Zhang, Y., Gao, X., Brown, M., & Jia, A. (2020). A new set of MODIS land products (MCD18): downward shortwave radiation and photosynthetically active radiation. *Remote Sensing*, 12, 168
- Brown, M., Skakun, S., He, T. & Liang, S. (2020). Intercomparison of machine-learning methods for estimating surface shortwave and photosynthetically active radiation. *Remote Sensing*, 12, 372
- Huang, G., Li, Z., Li, X., Liang, S., Yang, K., Wang, D., & Zhang, Y. (2019). Estimating surface solar irradiance from satellites: Past, present, and future perspectives. *Remote Sensing of Environment*, 233, 111371



**Figure 1.** Results of direct comparison between the MODIS DSR (MCD18A1) and PAR (MCD18A2) daily products with the BSRN and AmeriFlux measurements. Further analysis shows the daily overpass counts strongly affect the accuracy of estimating daily estimates.



**Figure 2.** Example of a high resolution DSR map from the new MCD18 product and a coarse resolution map from the CERES product. It clearly shows the new MODIS product resolves much more spatial detail than the coarse resolution CERES product.