

Protocol: Fuel moisture prediction using MODIS imagery

1. **Download MODIS data products** from the NASA Earth Observing System Data and Information System (<http://reverb.echo.nasa.gov/reverb/>) for dates of interest.

- **16-day dataset:** Vegetation Indices 16-day L3 Global 250m (MOD13Q1)

2. Each data product comes as a sinusoidal projection. **Use the MODIS Reprojection Tool** (NASA Land Processes Distributed Active Archive Center [LP DAAC], USGS/Earth Resources Observation and Science [EROS] Center, Sioux Falls, South Dakota; https://lpdaac.usgs.gov/lpdaac/tools/modis_reprojection_tool/) to project the data into the Universal Transverse Mercator projection zone 4 on the North American Datum 1983.

3. **Subset images using the MODIS reprojection tool** to cut down on data processing time. Each image must be subset to the exact same geographical coordinates.

4. **16-day NDVI and EVI vegetation index products are already calculated.**

5. **To calculate live fuel moisture (LFM)**, use the following algorithm:
 $LFM = 2.1 + 402 \text{ EVI}_{16} + 144 \text{ NDVI}_{16}$

6. **To calculate Dead fuel moisture (DFM)**, use the following algorithm:
 $DFM = 5.55 + 39.3 \text{ EVI}_{16} + 10.9 \text{ NDVI}_{16}$