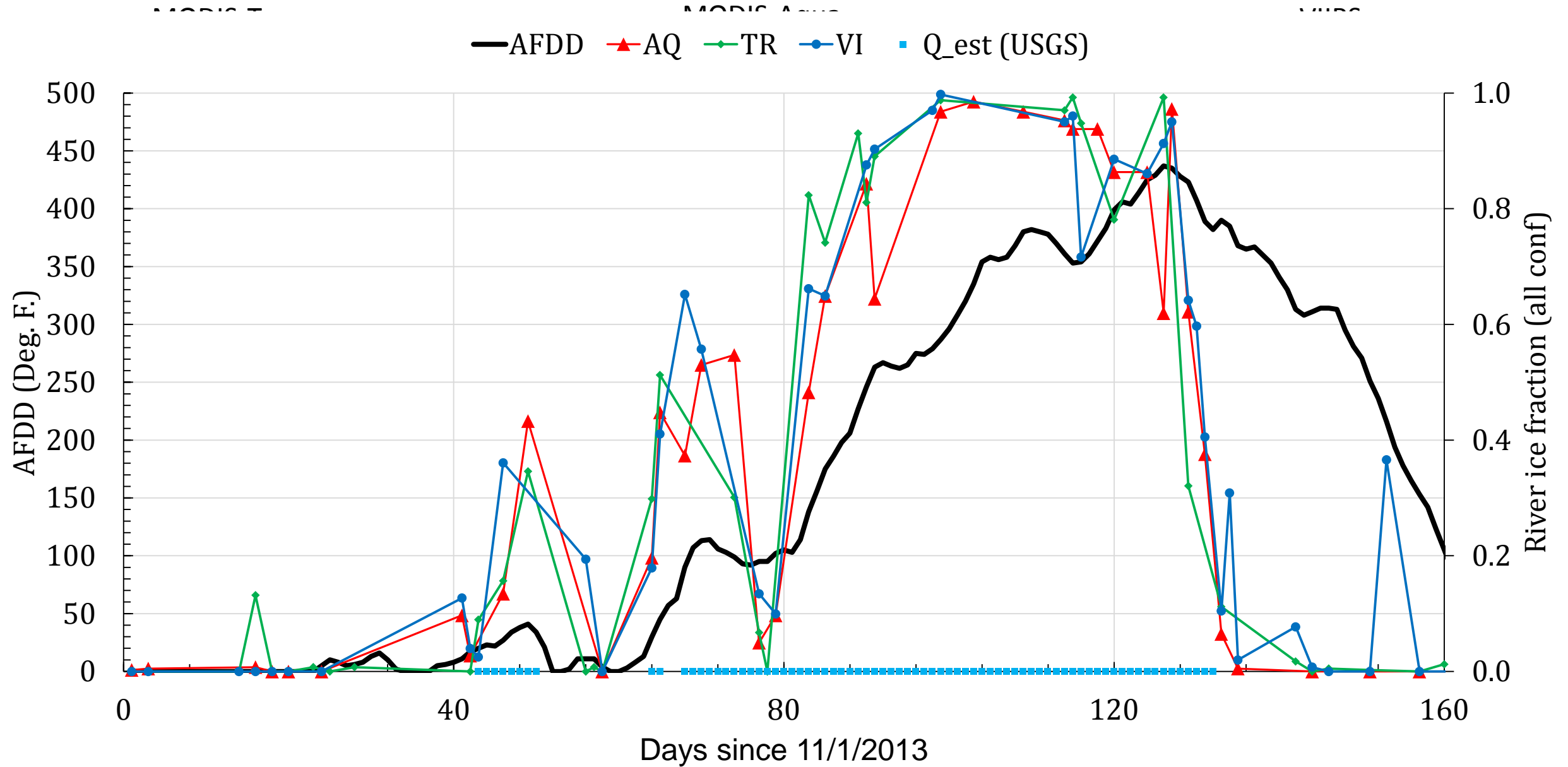


# Remote sensing of river ice with local cloud mask (2001-2016)



# Remote sensing of river ice and ice jams using an automated algorithm

## Application over the Lower Susquehanna River (2001-2016)

- Classification algorithm is a threshold-based decision tree type, developed from physical basis and statistical analysis (IDL)
  - Uses a land/water mask generated by multispectral max. likelihood method (ENVI/IDL)
  - Incorporates cloud masking (which is in-between that of MODIS/VIIRS overall), better than either
  - Uses 1 VIS (0.55 or 0.64 micron) + 1 SWIR (1.6 or 2.1 micron) band to discriminate
    - ice in three confidence bands
    - open water
    - snow
    - (opt. thick) cloud
  - Adaptive thresholding in case of snow cover adjacent to river
  - Viewing geometry based thresholding at VZA of 20° and 40° (MODIS only).
  - Validated by in-situ gauge, traffic camera obs. of river