# **Cryosphere Research at MSU**

Grant Gunn – Geography, Environment and Spatial Sciences



*Consecutively funded by the National Science Foundation for 25 years* 







#### Dr. Fritz Nelson (Co-PI)





#### Dr. Grant Gunn (Co-PI)

### **MSU Personnel**

#### Current Students: Raven Mitchell & Kelsey Nyland















## Google Earth Engine – Ice Phenology



# Ice Considerations for Underwater Pipelines – Enbridge's Line 5



# Impacts: Ice Types and Concentration

• NOAA National Environmental Satellite, Data and

