The United States Drought Monitor (USDM) is disseminated on a weekly basis by the National Drought Mitigation Center (NDMC), reporting drought conditions nationwide through the lens of revolving authors, themselves channeling interests and concerns of stakeholders local to their jurisdictions.  The USDM thus represents a difficult to replicate, yet authoritative weekly source of drought status down to local scales in the US.  The National Integrated Drought Information System (NIDIS) teamed with scientists at the National Aeronautics and Space Administration (NASA) to leverage artificial intelligence software developed at NASA Goddard Space Flight Center to learn mutual information (MI) between an array of drought indices, products, and factors drawing from Google Earth Engine and Climate Engine processing of NOAA Open Data Dissemination datasets (to inform index PDFs and MI weights), and the USDM.  In other words, we will discuss new multi indicator drought indices (MIDI) trained by the learned contributions of various drought factors to USDM, thus "training" such MIDI through USDM.  We will discuss several aims of this work from A) use of USDM informed MI as input for and forecasting of the drought monitor into the future, B) use of MI to generate new MIDI across many time scales, C) use of MI as a proxy for stakeholder and USDM author interests (with MI reflecting scales and hydrologic factors important to original USDM authorship) to inform provision of targeted maps and products to end users of drought.gov.