Flash Drought Prediction & Monitoring Tools

	Name	QR Code	Operational Status	Source	Description
Monitoring: Evapotranspiration-Focused Tools					
1	Evaporative Demand Drought Index (EDDI)	https://psl.noaa.gov/eddi/	Available	NOAA Physical Sciences Laboratory	• Index representing anomalies in atmospheric evaporative demand (E0; also known as "the thirst of the atmosphere"). • EDDI is generated at 1-week through 12-month timescales daily, with a 5-day lag time. It uses atmospheric variable data from NLDAS-2 to calculate reference ET, and compares that to ET climatology. Results are displayed using a classification scheme equivalent to the U.S. Drought Monitor categories (D0, D1, D2, etc.).
2	SPoRT Evaporative Stress Index (ESI)	https://climateserv.servirglobal.net/map	Available	NASA/USDA	• Evaporative Stress Index (ESI) is produced weekly at a 5-kilometer resolution globally, composited over 4-week and 12-week time periods. • Based on satellite observations of land surface temperature, which are used by the NASA SPoRT Land Information System to estimate water loss due to evapotranspiration (ET). The ESI indicates how the current rate of ET compares to normal conditions.
Monitoring: Precipitation-Focused Tools					
3	Integrated Water Portal	https://legacy.climate.ncsu.edu/water/map	Available; currently in transition	Transitioning to SRCC by Fall 2022	• SPEI (Standard Precipitation Evapotranspiration Index) is provided as one of several layers on this integrated data platform, updated daily.
4	High Plains Regional Climate Center ACIS Maps	https://hprcc.unl.edu/maps.php?map=ACISClimateMaps	Available	High Plains Regional Climate Center	• SPI and SPEI maps are produced daily using data from the Applied Climate Information System (ACIS) and developed in partnership with the National Drought Mitigation Center. • ACIS data are primarily from: National Weather Service Cooperative Observer Program, Weather-Bureau-Army-Navy/Automated Surface Observing System, Snow Telemetry (SNOTEL), Community Collaborative Rain, Hail, & Snow Network, and USFS Remote Automatic Weather Stations.
5	Global SPEI Drought Monitor	https://spei.csic.es/index.html	Available		• SPEI (Standard Precipitation Evapotranspiration Index) is produced at a global scale. • Based on precipitation and potential evapotranspiration (PET).

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Monitoring: Soil Moisture–Focused Tools

6	Flash Drought Assessment Using SMAP Hydrology (FLASH)	https://vadosezone.tamu.edu/flash/	Experimental	Texas A & M University	• Flash Drought Stress Index (FDSI): A composite indicator based on two complementary indices using SMAP soil moisture for measuring the severity and the rate of intensification of drought, respectively: Soil Moisture Stress and Relative Rate of Drydown. • Used for global flash drought monitoring. FDSI of greater than .71 indicates emerging/sustained flash droughts.

Monitoring: Integrated Products

7	U.S. Drought Monitor	https://droughtmonitor.unl.edu/	Available	NDMC/USDA/NOAA	• Weekly map released every Thursday showing areas of the U.S. in drought, using five classifications: abnormally dry (D0), moderate drought (D1), severe drought (D2), extreme drought (D3), and exceptional drought (D4). • Developed by a team of experts who synthesize the best available data from a range of sources to create a confluence of evidence-based map.
8	Quick Drought Response Index (QuickDRI)	https://quickdri.unl.edu/	Available	University of Nebraska; USDA	• QuickDRI is a shorter-term indicator of dryness, providing a snapshot of anomalously dry or wet conditions over the past 4 weeks, updated weekly over CONUS. • Calculated through the analysis of satellite- and model-based observations of conditions that influence drought.

Prediction: Integrated Products

9	Midwestern Regional Climate Center Flash Drought Risk Tool	https://mrcc.purdue.edu/MWDEWS/flashdroughttool.html	In Beta Testing	Purdue University / Midwest Regional Climate Center	• This tool shows the risk of rapid intensification of drought conditions (i.e., flash drought) over the next two weeks based on the incorporation of forecasted data over that 14-day period. Covers the eastern U.S. only. • Developed by utilizing machine learning, which trained on historical flash drought events and several atmospheric variable datasets.
10	Week 2 Rapid Onset (Flash Drought) Hazard Forecast	https://www.cpc.ncep.noaa.gov/products/predictions/threats/threats.php	Experimental	NOAA Climate Prediction Center	• Hazard forecast that uses antecedent dryness and temperature and precipitation outlooks to indicate rapid-onset drought during the next two weeks. • Inputs include: (1) abnormal dryness (D0) in the current U.S. Drought Monitor; (2) soil moisture below the 30th percentile; (3) WPC's 7-day positive temperature and negative precipitation anomalies; (4) CPC's 8–14 day outlook: elevated probabilities for above-normal temperatures and below-normal precipitation. • Forecasters depict a Rapid Onset Drought Risk on CPC's Week-2 Hazards when conditions warrant.