This document contains additional information on the training and label data.

Raw data used:

- Evapotranspiration (ET)
- Potential evapotranspiration (PET)
- Precipitation (P)
- Soil moisture (SM)
- Runoff (R_0)
- Moisture loss from soil (L)
- Soil moisture deficit (SMD; difference between available water capacity of the soil and soil moisture).

Indices used for training data:

- Standardized evaporative stress ratio (SESR; standardized ratio of ET/PET)
- Standardized evapotranspiration deficit index (SEDI; standardized difference between ET and PET)
- Evaporative demand drought index (EDDI; PET transformed to a normal distribution)
- Standardized precipitation evaporation index (SPEI; P – PET transformed to a normal distribution)
- Standardized antecedent precipitation evapotranspiration index (SAPEI; P – PET + memory transformed to a normal distribution)
- Soil moisture index (SMI; 0 – 40cm soil moisture standardized by the available water capacity)
- Soil moisture drought index (SODI; $[P + L + R_0] – [PET + SMD]$ transformed from a normal distribution)
- Flash drought intensity index (FDII; uses 0 – 40cm SM to quantify rapid intensification and intensity of drought; see Otkin et al. 2021 for details)

Label data used:

- Christian et al. 2019 (uses SESR to identify rapid intensification and drought)
- Nogeura et al. 2020 (uses SPEI to identify rapid intensification and drought)
- Liu et al. 2020 (uses SM to identify rapid intensification and drought)
- Pendergrass et al. 2020 (uses EDDI to identify rapid intensification and drought)
- Otkin et al. 2021 (uses FDII calculated from SM. FDII > 0 indicates flash drought is identified)