Lesson 36: Droughts
Drought Definitions

Drought Signals [McNab and Karl 1992]

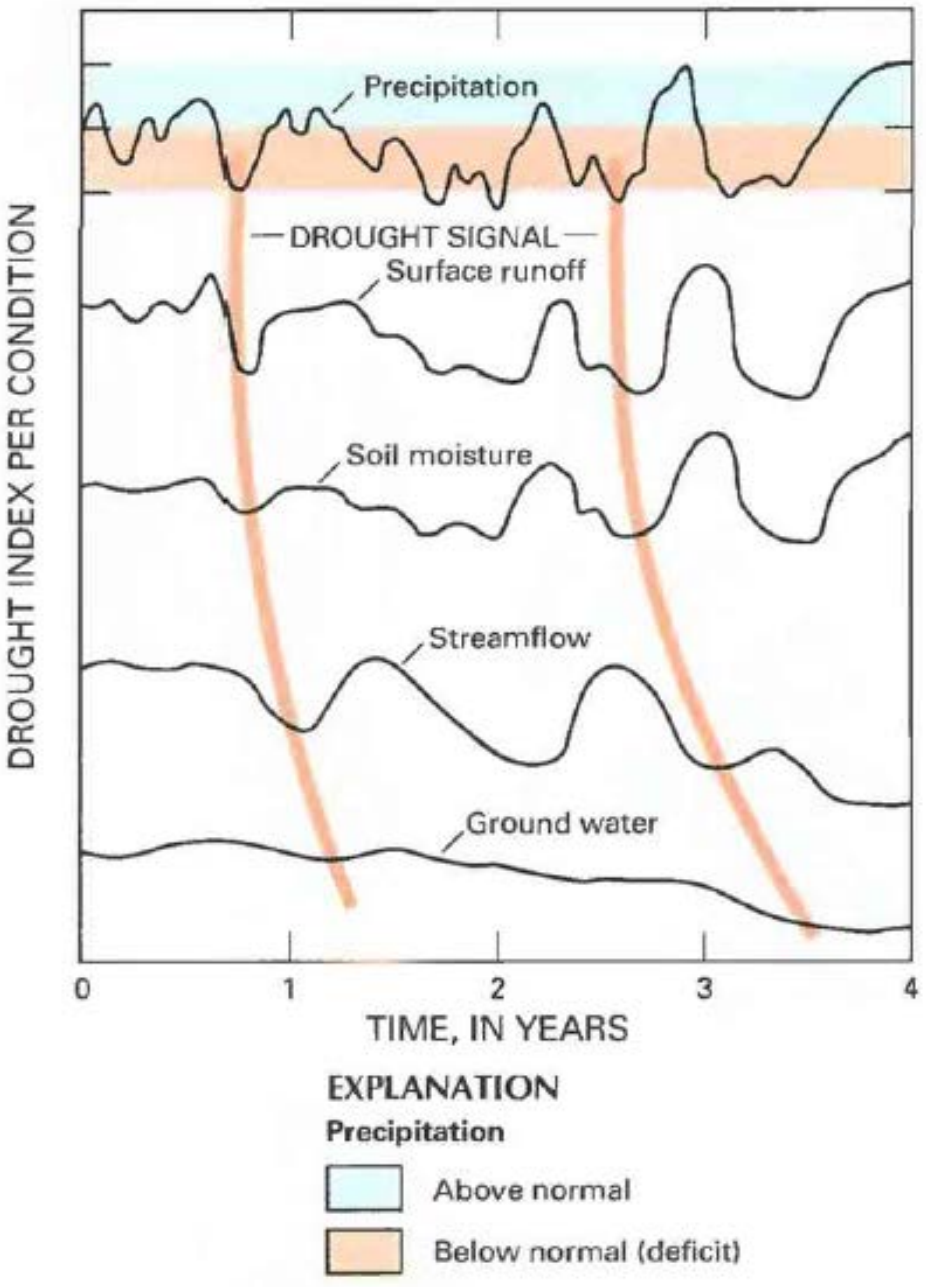


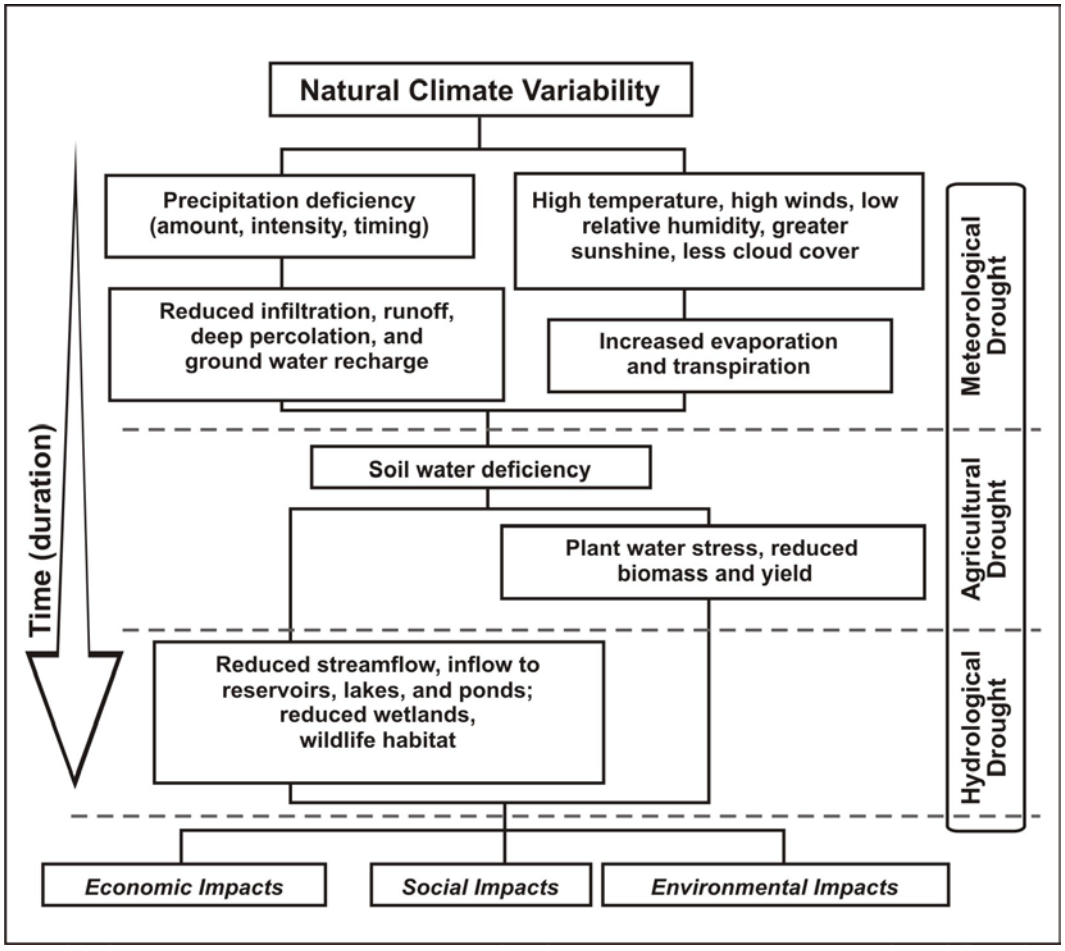
Figure 32. Propagation of precipitation deficits through other components of the hydrologic cycle. (Source: Modified from Changnon, 1987.)

Lesson 36: Droughts
Types of Droughts

Losses and affected population for drought and other natural hazards globally, 1900-2004 [Source: EM-DAT, 2009]

Disaster Type	Deaths	Affected Population	Economic Losses (US$1000)
Drought	11,707,968	1,885,890,567	80,453,813
Flood	6,886,838	2,748,389,208	362,498,105
Storms	1,215,094	649,097,058	446,320,656
Heat waves	101,577	11,500,287	31,691,419
Landslides	56,730	10,752,494	7,127,374
Earthquake	2,140,134	99,735,332	340,281,331
Volcanoes	95,951	4,197,447	2,890,348
Wildfires	2,989	4,032,748	33,871,601
Total	22,207,281	5,413,595,141	1,305,134,647

Sequence of drought occurrence and impacts [NDMC, http://www.drought.unl.edu]



Lesson 36: Droughts
Drought Indexes

Standardized Precipitation Index (SPI) [Lloyd-Hughes and Saunders 2002]

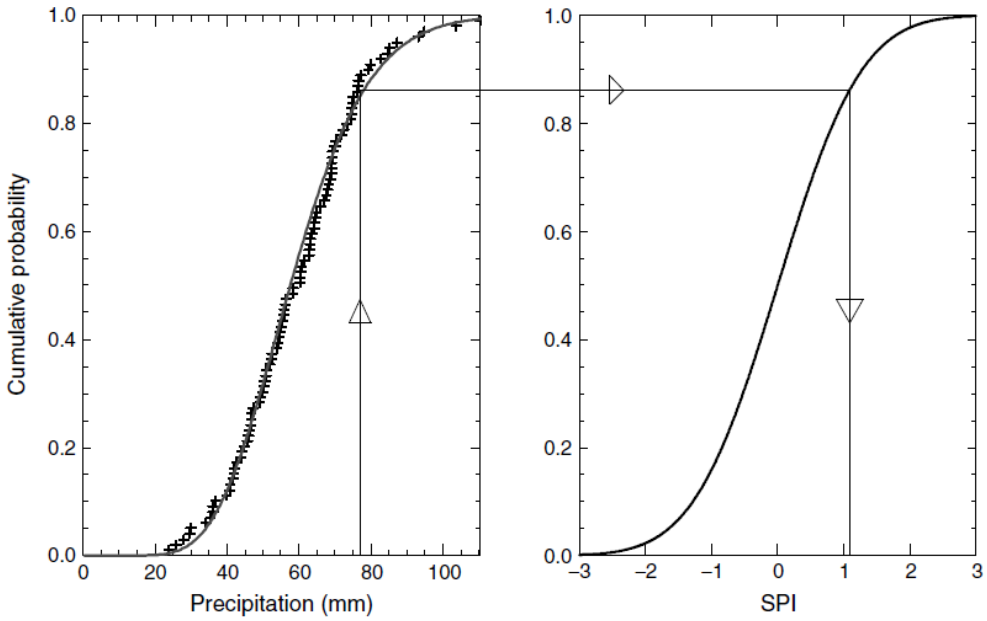


Figure 1. Example of an equiprobability transformation from a fitted gamma distribution to the standard normal distribution. Data are for the 3 month (DJF) average precipitation over the southeast of England. (After Edwards and McKee (1997))

Table II. Drought classification by SPI value and corresponding event probabilities

SPI value	Category	Probability %
2.00 or more	Extremely wet	2.3
1.50 to 1.99	Severely wet	4.4
1.00 to 1.49	Moderately wet	9.2
0 to 0.99	Mildly wet	34.1
0 to −0.99	Mild drought	34.1
−1.00 to −1.49	Moderate drought	9.2
−1.50 to −1.99	Severe drought	4.4
−2 or less	Extreme drought	2.3