1 Climate Report for Phillips County

2 Historical Climate Trends for Phillips County

Climate has changed over the last 50 years in Phillips County. In this analysis, we use GridMet meteorology to look at trends in climate in Phillips County since 1979. We do this analysis for reference et and gross primary production in the section below.

2.1 Historical Trends in Reference ET in Phillips County

Between 1979 and 2020, there has been no statistically significant change in reference et in Phillips County at an annual timescale. When looking at monthly data, there have been significant changes in reference et in April (-0.17 inches per decade). Below, annual trends in reference et are plotted for the GridMet period of record.

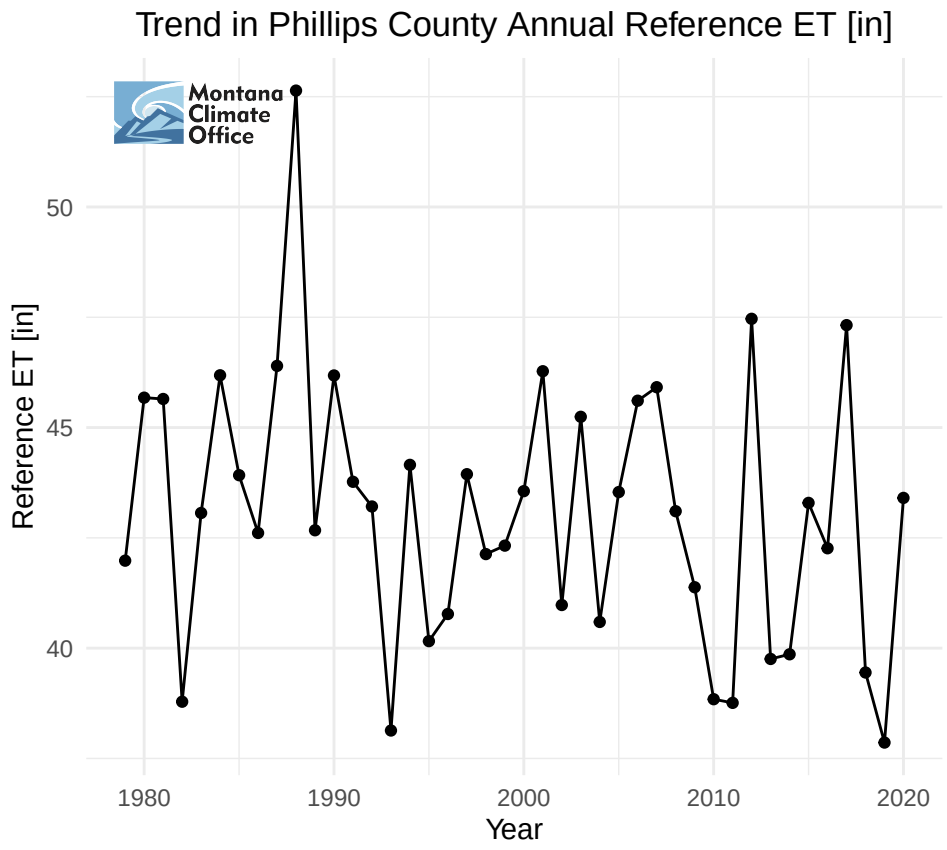

Figure 1: Historical Annual Reference Et Trends Across Phillips County

2.2 Historical Trends in Gross Primary Production in Phillips County

Between 1979 and 2020, there has been a statistically significant change in gross primary production of 49.99 kg m-2 per decade at an annual timescale. When looking at monthly data, there have been significant changes in gross primary production in May (130.04 kg m-2 per decade), June (168.7 kg m-2 per decade), July (137.22 kg m-2 per decade), and August (84.49 kg m-2 per decade). Below, annual trends in gross primary production are plotted for the GridMet period of record.

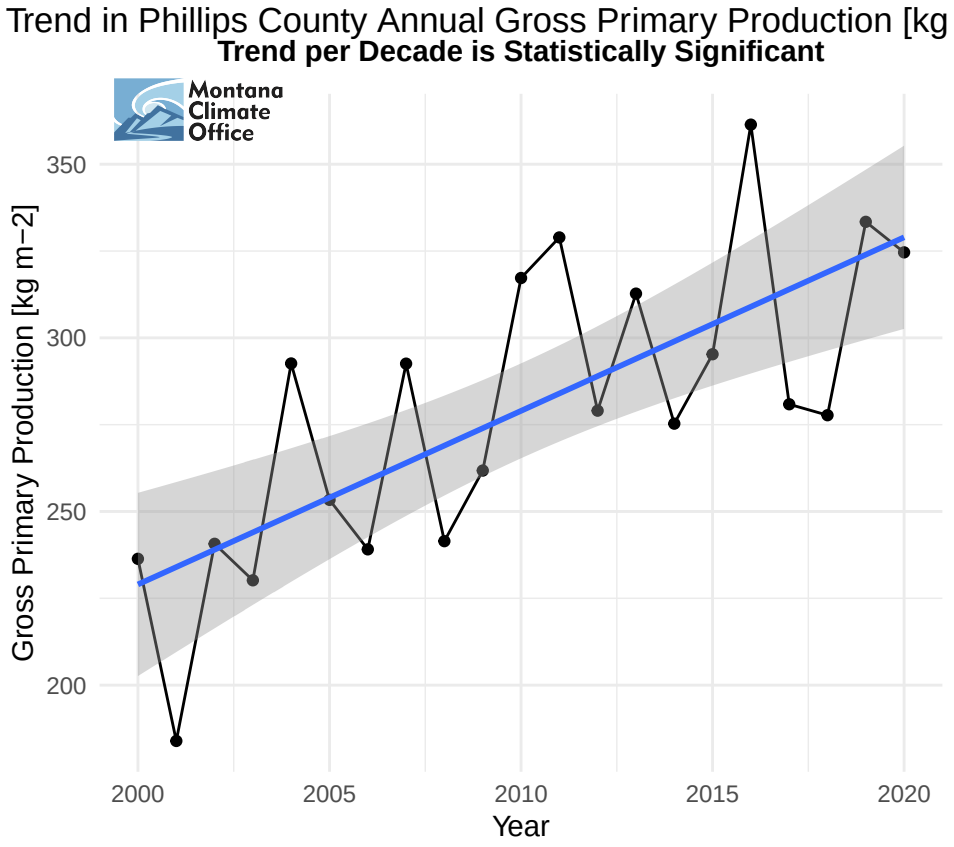

Figure 2: Historical Annual Gross Primary Production Trends Across Phillips County

3 Future Climate Projection for Phillips County

3.1 Projected Annual Changes in Reference ET in Phillips County

Between 1950 and 2099, it is projected that under the middle of the road emissions scenario, reference et will increase at a rate of 0.4 inches per decade and under the high emissions emissions scenario, reference et will increase at a rate of 0.4 inches per decade. Below, a timeseries plot shows projected changes in reference et under these different emission scenarios.

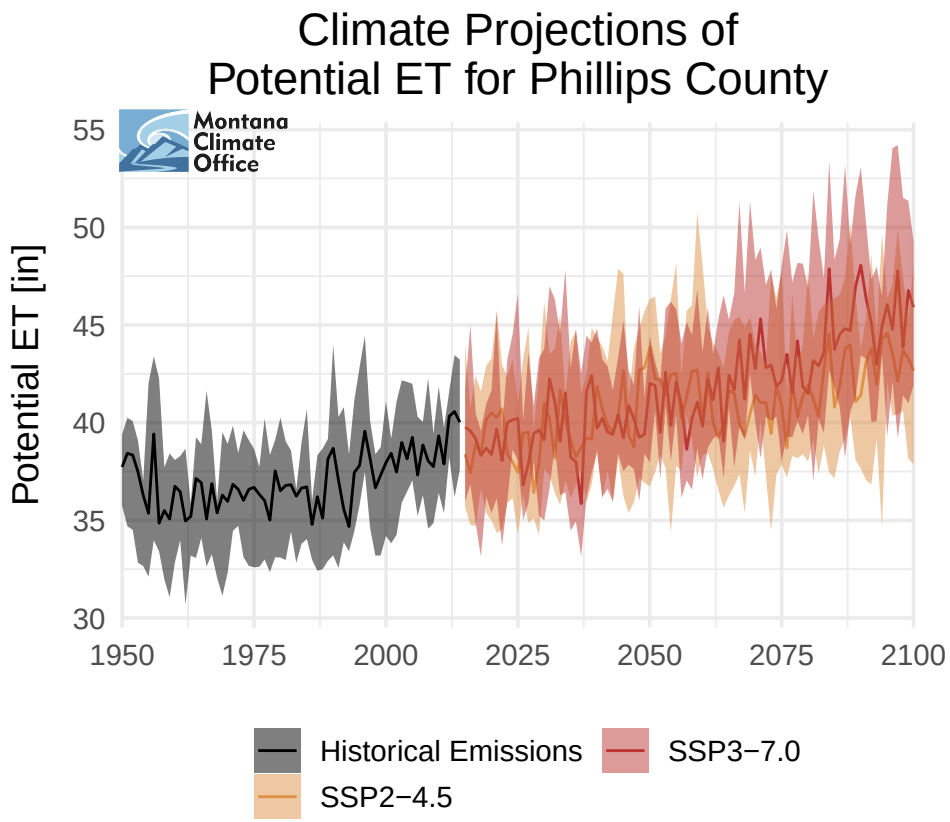

Figure 3: Projected Timeseries Of Annual Reference Et In Phillips County

Table 1: Projected Monthly Reference Et Changes In Phillips County

Month	SSP2-4.5	SSP3-7.0
Mid Century (2040-2069)		
Jan	0.05	0.06
Feb	0.07	0.07
Mar	0.11	0.09
Apr	0.15	0.10
May	0.23	0.14
Jun	0.41	0.36
Jul	0.46	0.55
Aug	0.61	0.60
Sep	0.42	0.52
Oct	0.28	0.34
Nov	0.08	0.12
Dec	0.05	0.08
End-of-Century (2070-2099)		
Jan	0.10	0.12
Feb	0.21	0.09
Mar	0.19	0.30
Apr	0.01	0.26
May	0.24	0.40
Jun	0.61	0.65
Jul	0.94	1.17
Aug	0.75	1.68
Sep	0.58	1.65
Oct	0.21	1.22
Nov	0.06	0.23
Dec	0.04	0.16

3.2 Projected Monthly Changes in Reference ET in Phillips County

In addition to changing at annual time scales, reference et is also projected to change at the monthly scale. By mid century (2040-2069), Aug is projected to see the largest increase in reference et (0.61 inches) under the ssp2-4.5 scenario relative to the 1991 - 2020 baseline and Aug is projected to see the largest increase in reference et (0.6 inches) under the ssp3-7.0 scenario relative to the 1991 - 2020 baseline. By end-of-century (2070-2099), Jul is projected to see the largest increase in reference et (0.94 inches) under the ssp2-4.5 scenario relative to the 1991 - 2020 baseline and Aug is projected to see the largest increase in reference et (1.68 inches) under the ssp3-7.0 scenario relative to the 1991 - 2020 baseline.. Below, a table and graph showing changes in reference et for the SSP2-4.5 and SSP3-7.0 scenarios is provided to give a monthly breakdown of projected changes.

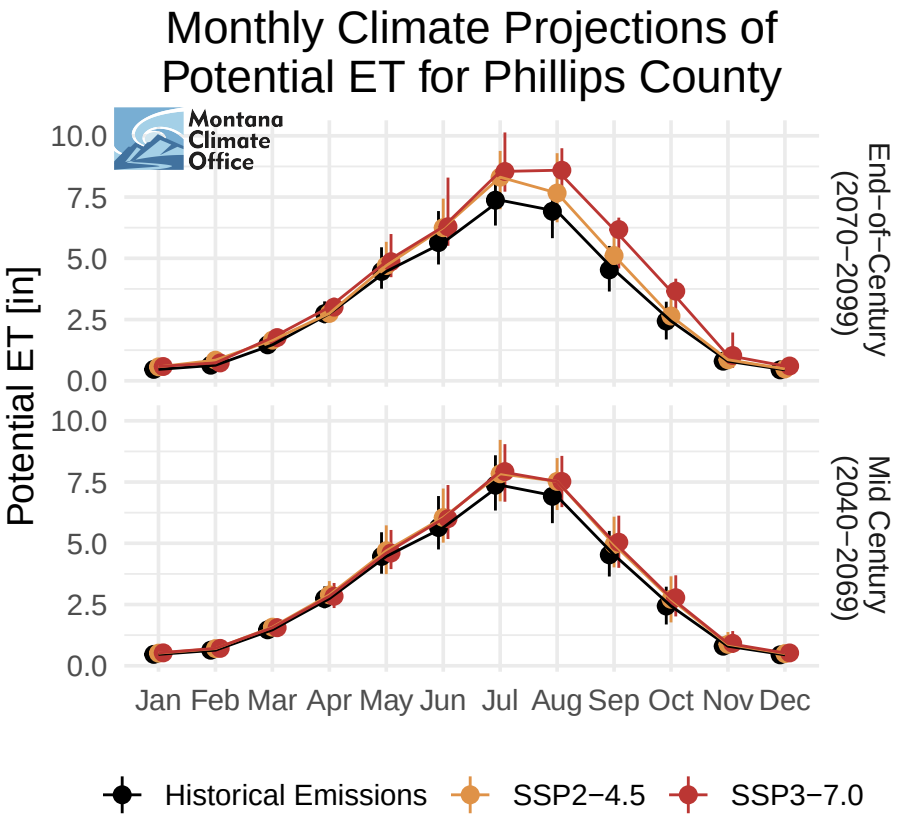

Figure 4: Projected Monthly Reference Et Changes In Phillips County