2022 San Pedro Flow Update

Data sources:

- Stream gauge data from USGS website. Daily average flow from Charleston Gauge (most recent ~1 yr of data is provisional)
- USDA-ARS precipitation and runoff data available at: https://www.tucson.ars.ag.gov/dap/
- Precipitation data from NOAA, Climate at a Glance, Website

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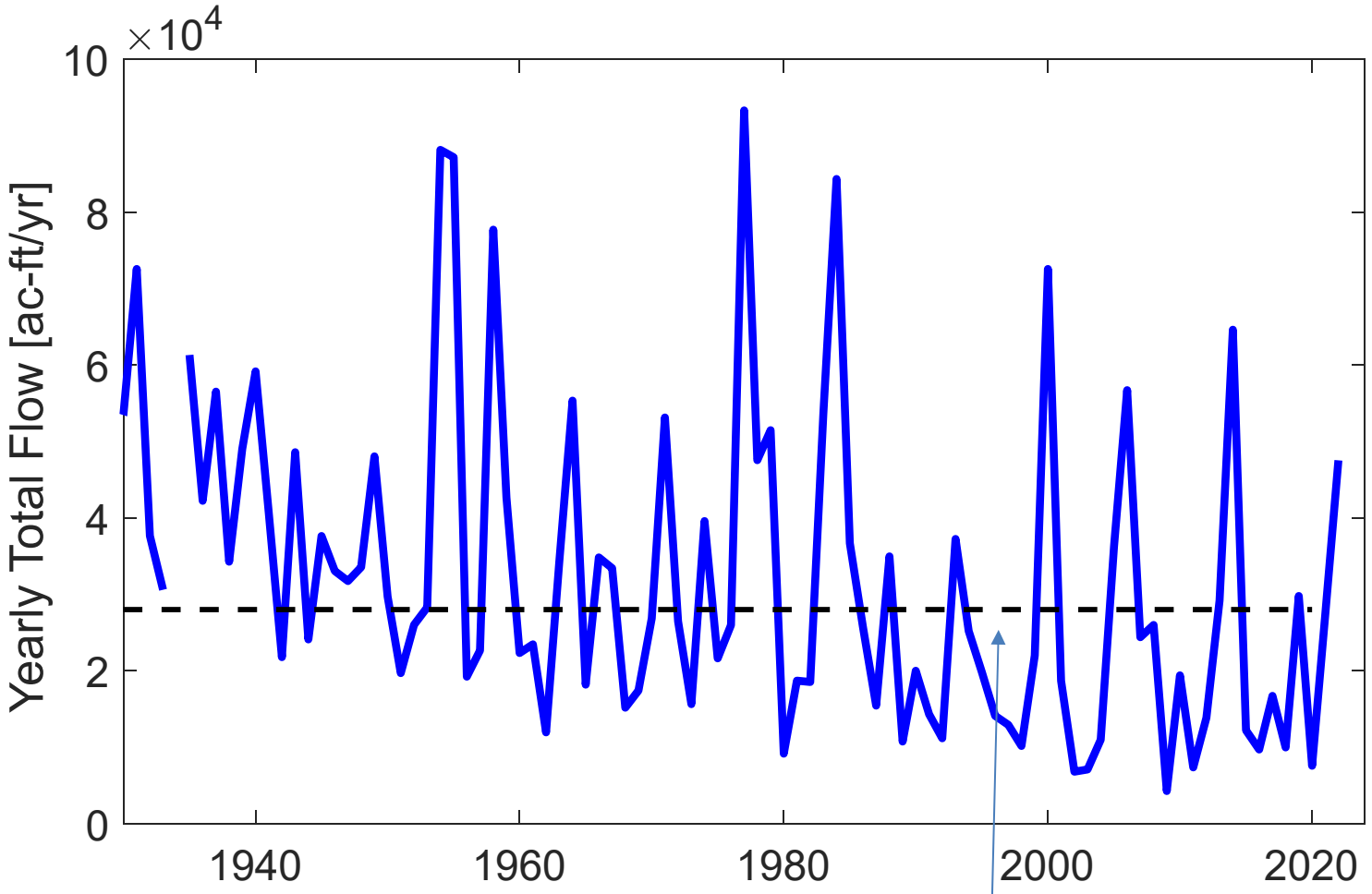
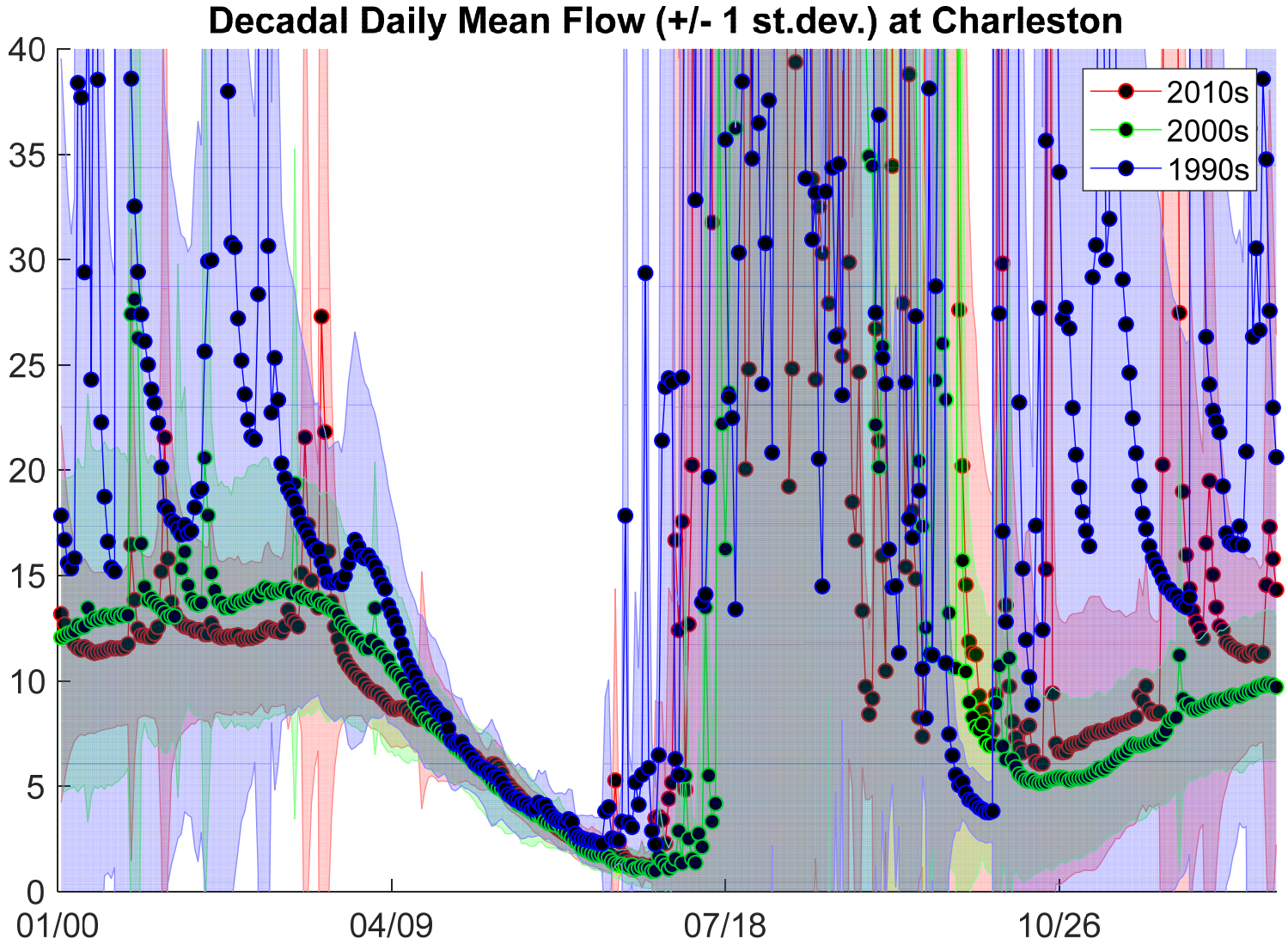
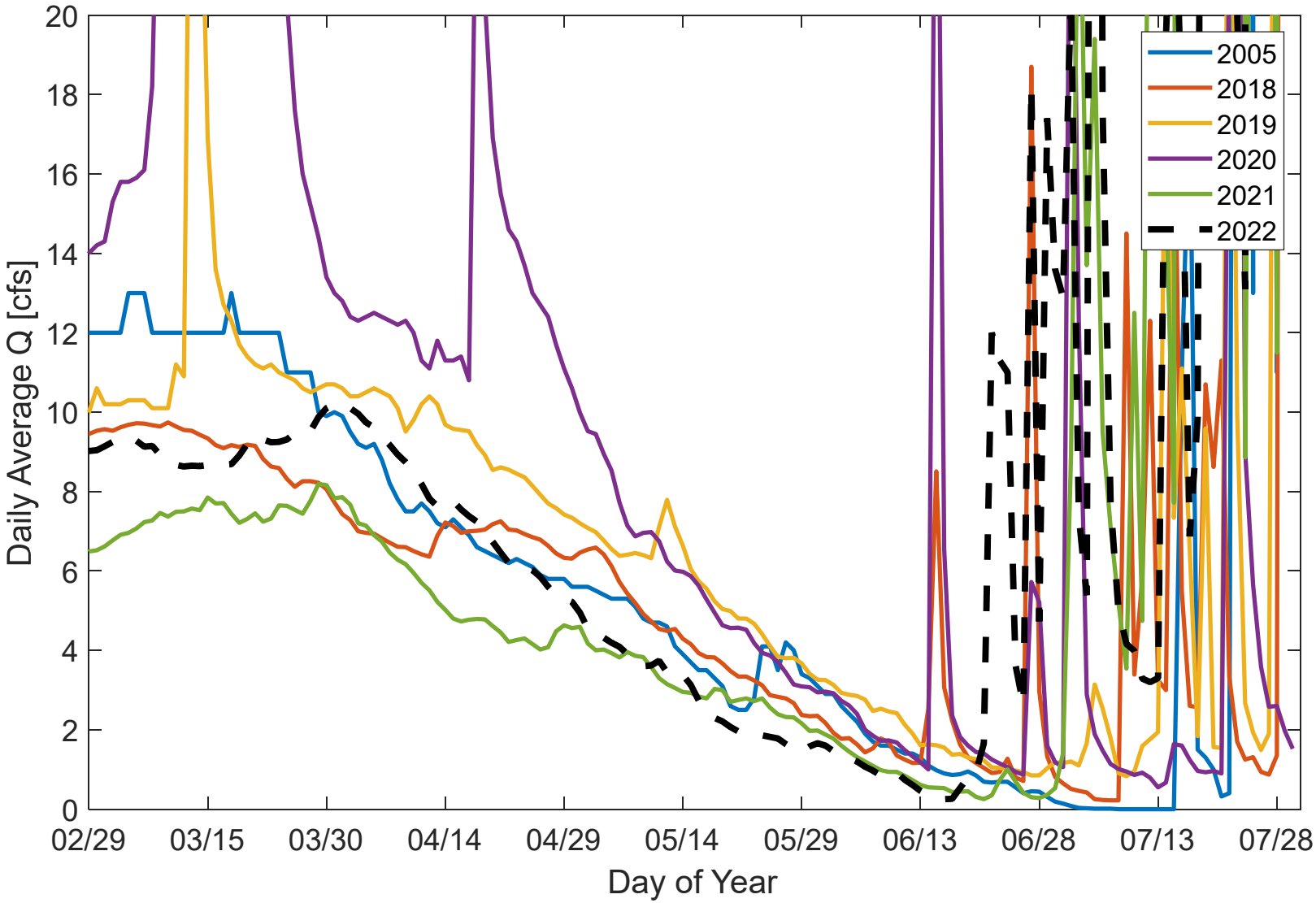
Charleston Gauge Annual Flows



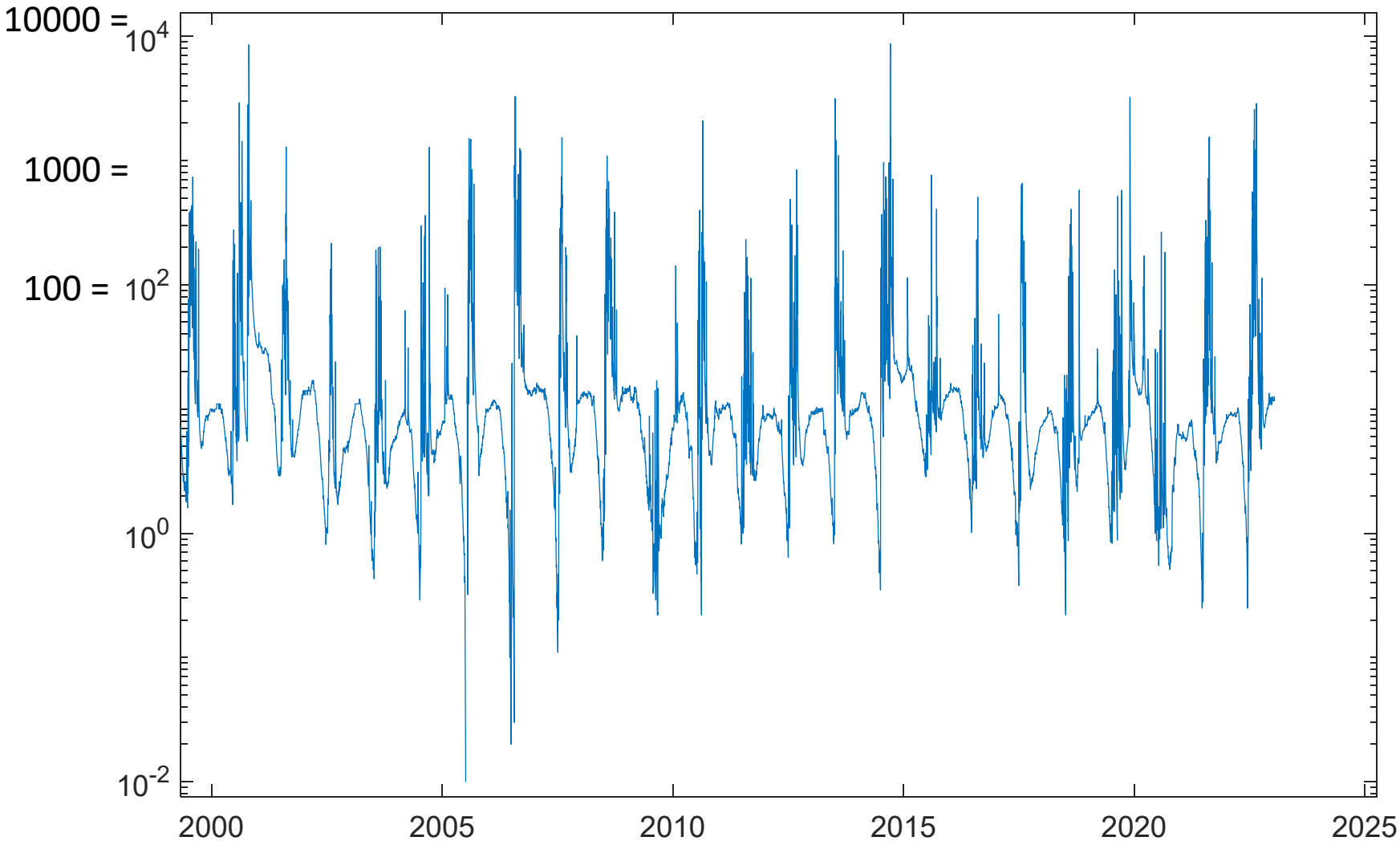

Decadal Daily Mean Flow (+/- 1 st.dev.) at Charleston
2010s
2000s
1990s
40
35
30
25
20
15
10
5
0
01/00
04/09
07/18
10/26

Charleston Gauge Springtime Behavior

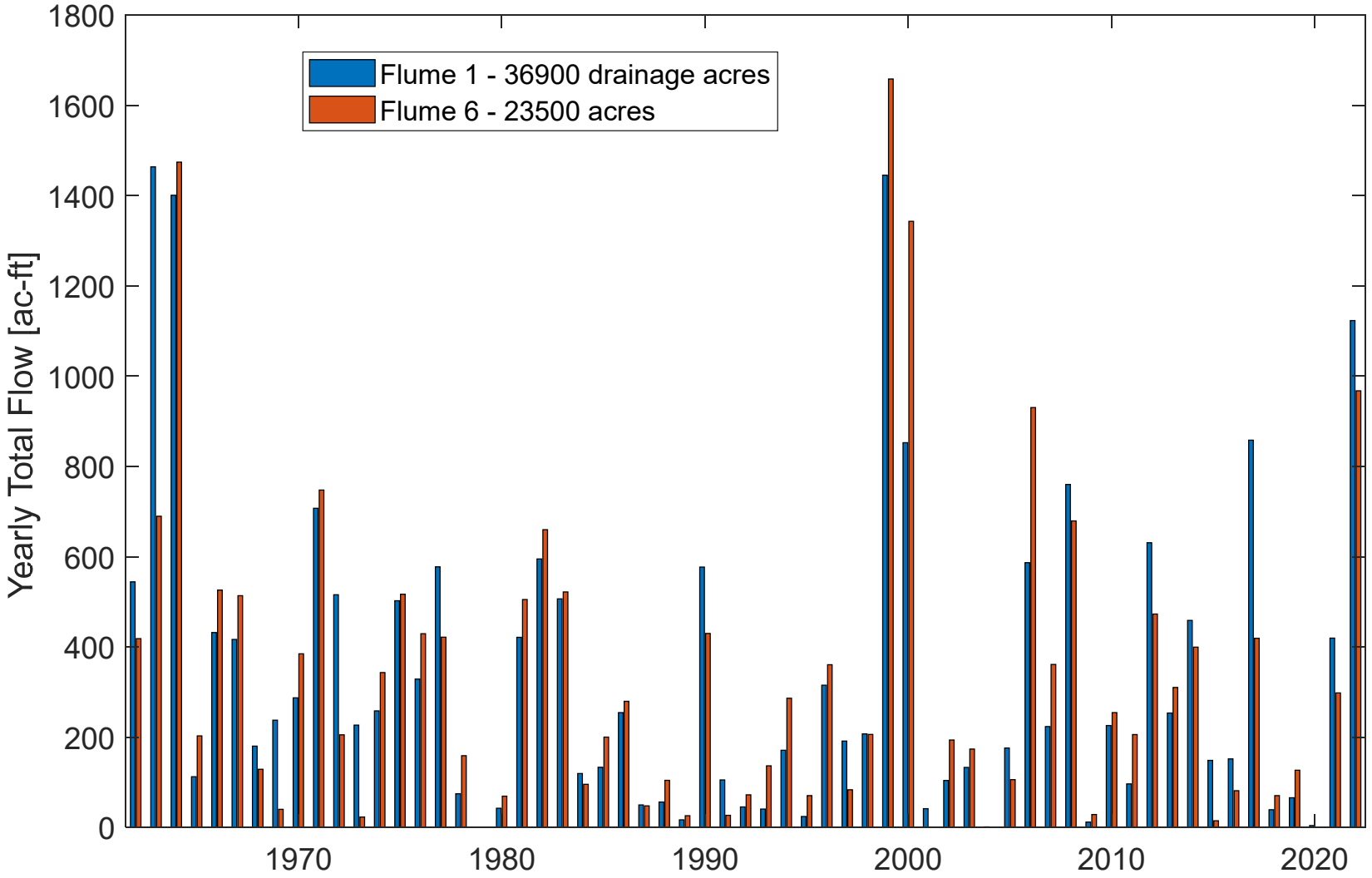


2005 = year where Q=0

Charleston Gauge Daily Flows (cfs): last 10 years

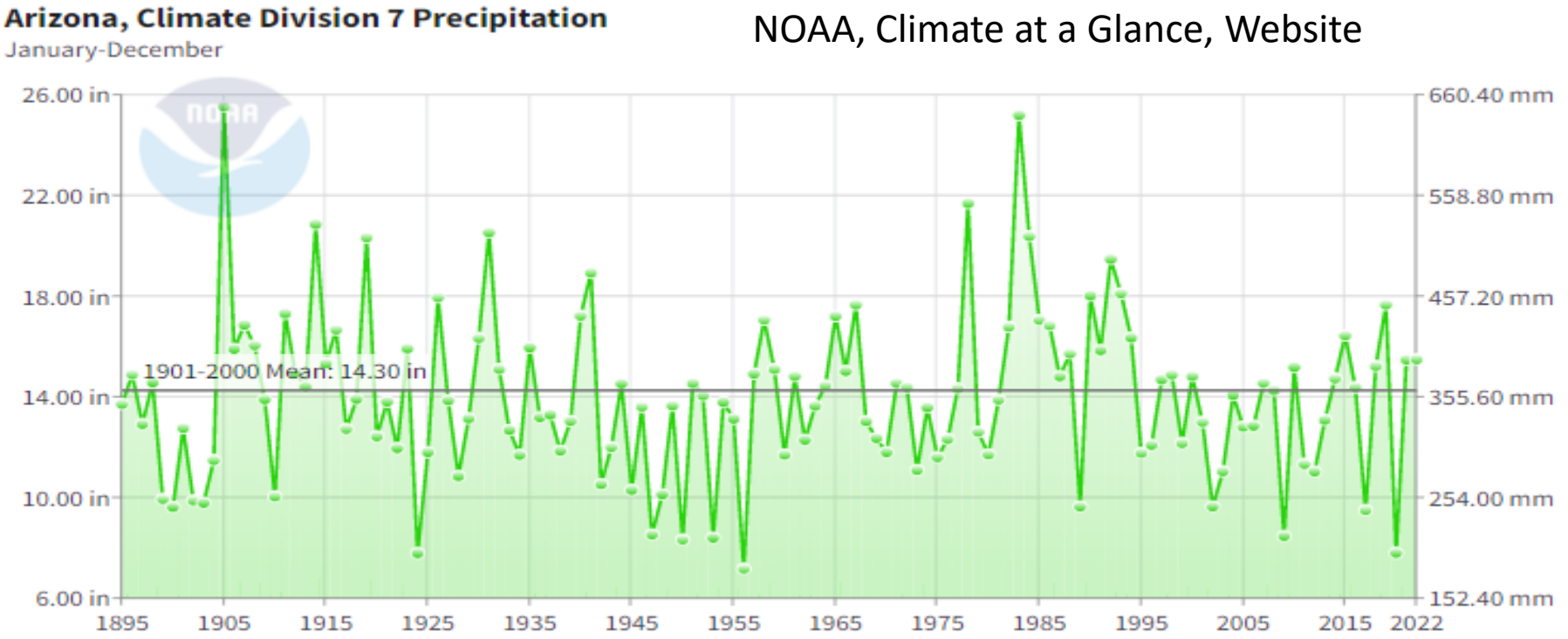


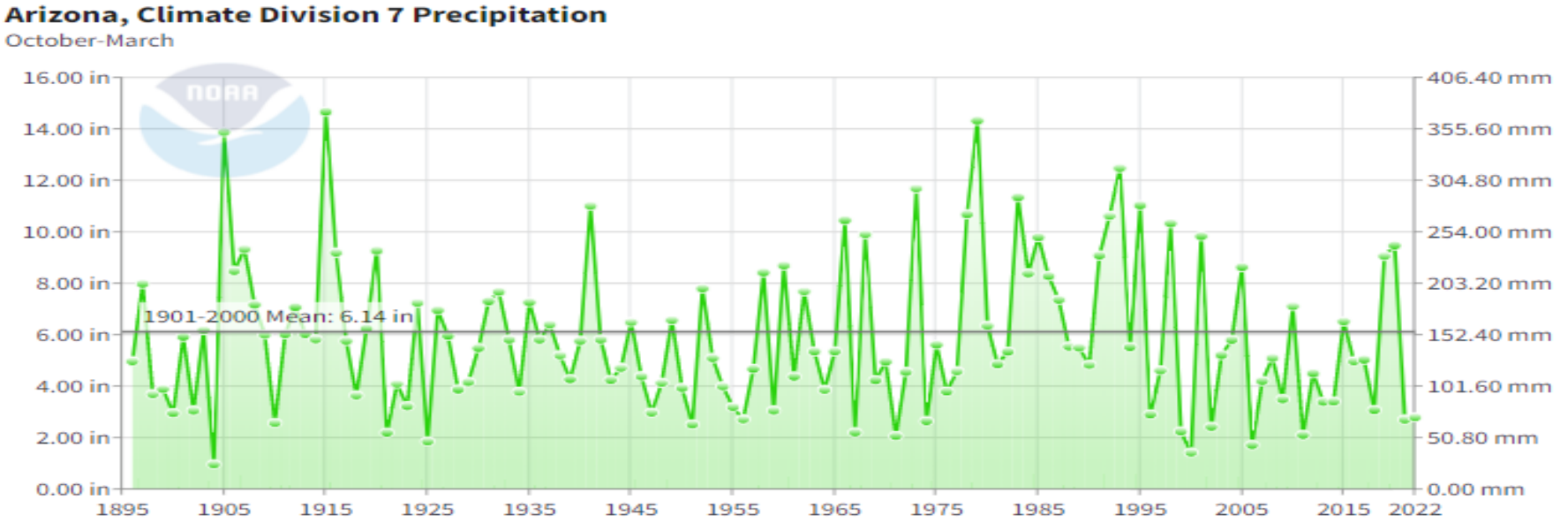
Ephemeral flow into the San Pedro: Walnut Gulch Flume 1 and 6 Annual Flow

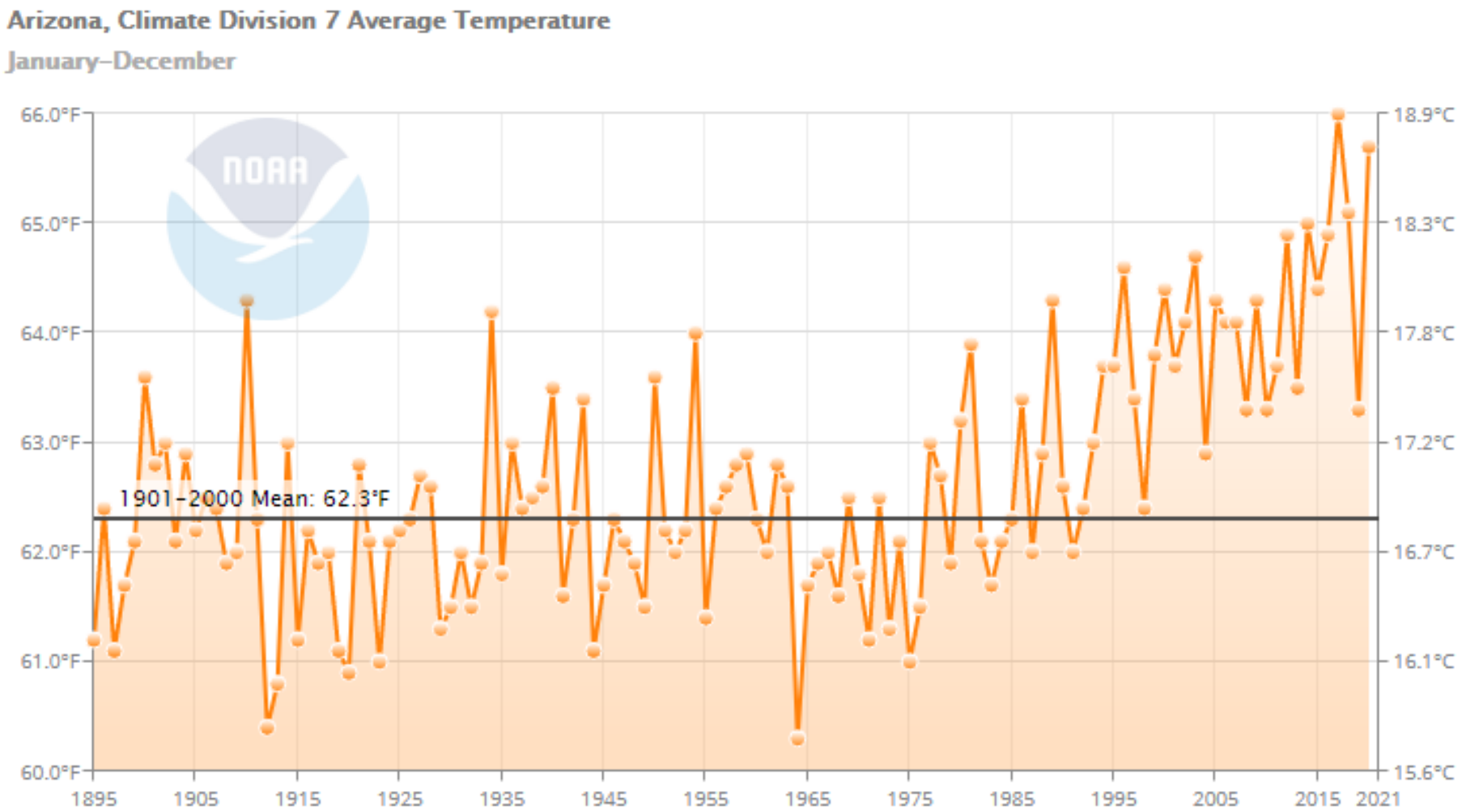


Annual flows at Charleston and Walnut Gulch are weakly correlated (R2 = 0.09)

NOAA, Climate at a Glance, Website

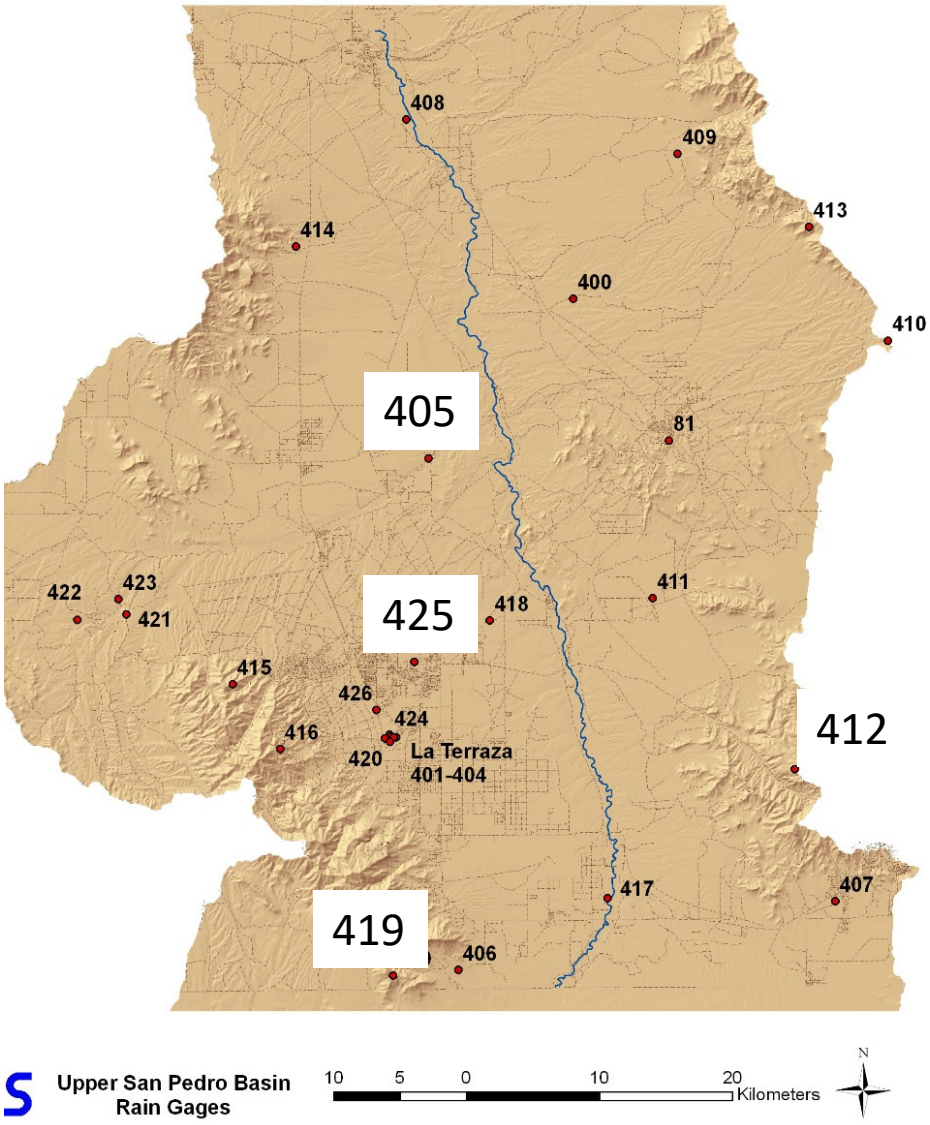






Combined cool season precipitation decreases and increased temperatures likely result in substantial snowpack reductions in the mountains and reduced aquifer recharge.

USPB Rain gauges operated by ARS for the USPP, Available since 2007



https://www.tucson.ars.ag.gov/dap/

Year	Gage 405 Total (in.)	Gage 412 Total (in.)	Gage 419 Total (in.)	Gage 425 Total (in.)
2007	10.125	21.710	18.440	2.815
2008	12.255	13.240	22.140	10.665
2009	6.675	11.380	11.155	6.045
2010	16.215	17.545	16.650	12.860
2011	13.595	12.875	14.270	8.395
2012	12.210	10.055	13.360	8.960
2013	10.675	19.835	16.790	11.395
2014	17.475	20.305	20.175	19.240
2015	13.110	19.145	19.295	14.175
2016	10.820	15.410	16.810	9.650
2017	7.555	8.990	13.250	8.955
2018	12.365	19.910	20.240	10.085
2019	13.195	16.180	18.055	13.780
2020	6.280	10.550	9.805	5.285
2021	14.255	21.555	14.760	14.525
2022	14.690	20.060	22.405	10.850

The End