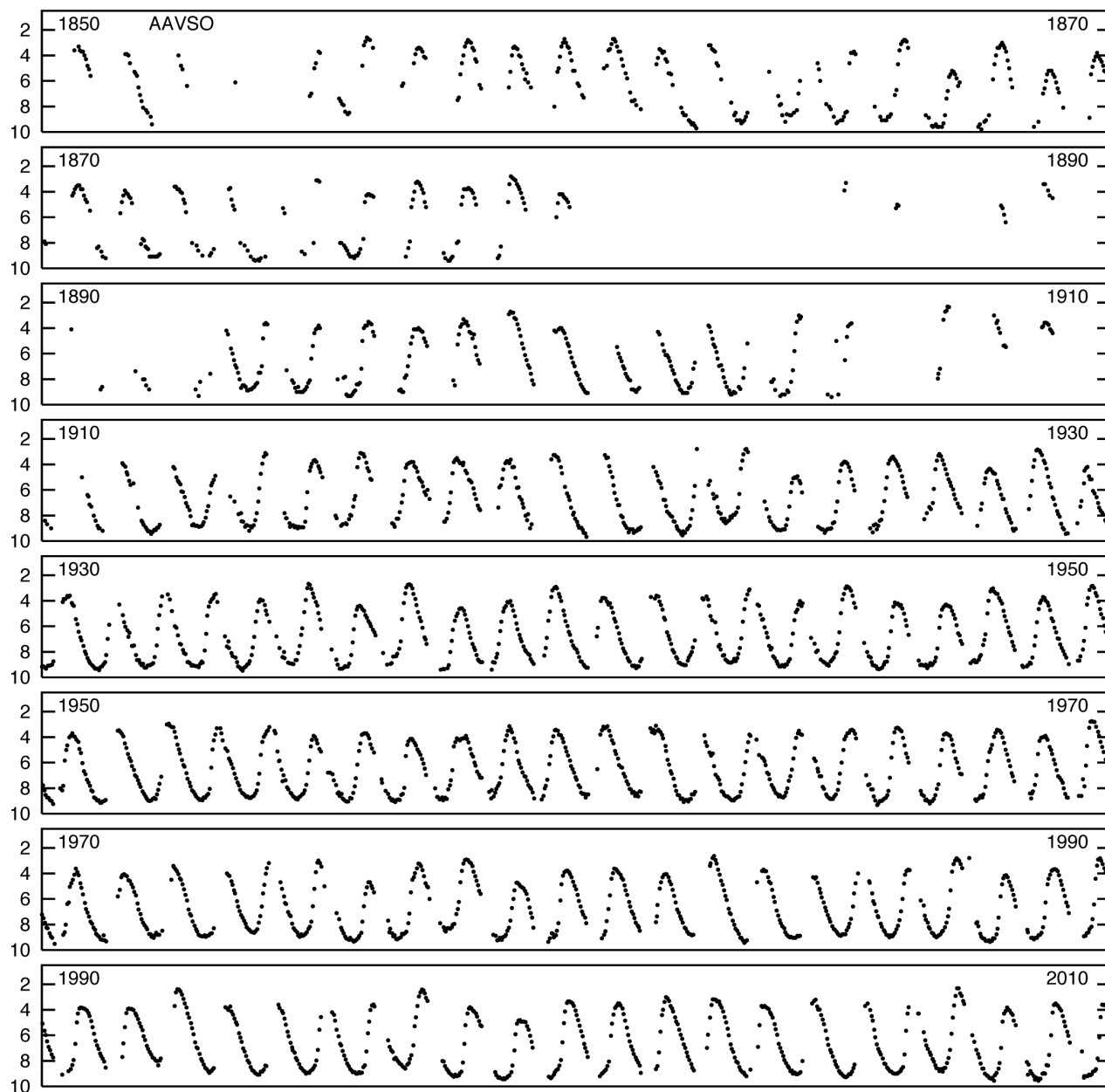


Appendix 1 – SAMPLE LONG-TERM LIGHT CURVES

The following pages show examples of long-term light curves of several types of variable stars in the AAVSO visual observing program. Light curves covering such long periods of time can make an interesting study of the long-term behavioral changes which some stars exhibit.

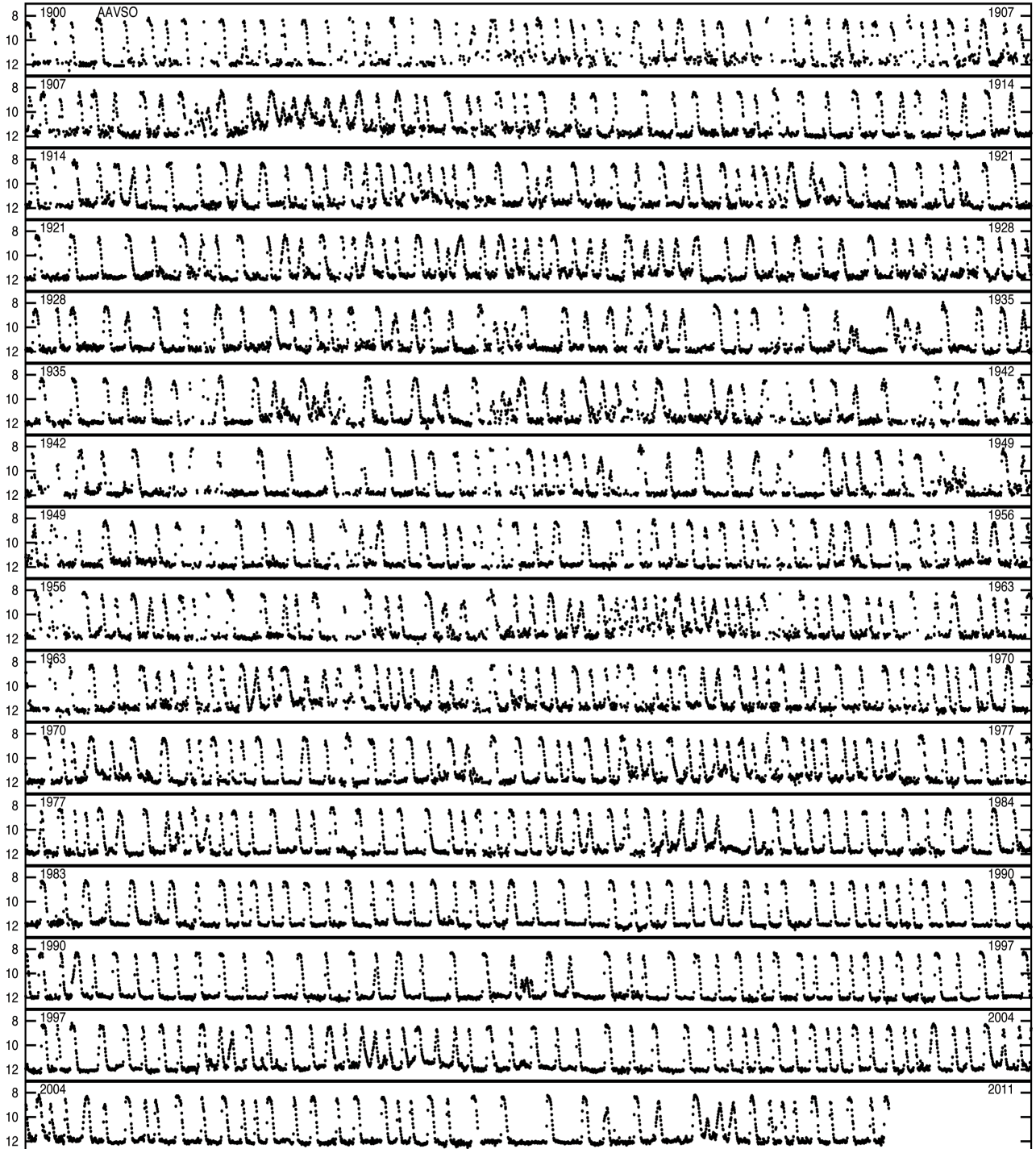
Omicron Ceti (Mira) 1850–2010 (10-day means)

Omicron Ceti (A.K.A. Mira) is the prototype of pulsating long period variables and the first star recognized to have changing brightness. It has a period of 332 days. Generally, Mira varies between magnitudes 3.5 and 9, but the individual maxima and minima may be much brighter or fainter than these mean values. Its large amplitude of variation and its brightness make Mira particularly easy to observe. Mira is one of the few long period variables with a close companion which is also variable (VZ Ceti). See https://www.aavso.org/vsots_mira2 for more information on this famous star.



SS Cygni (U Gem type) 1900–2010 (1-day means)

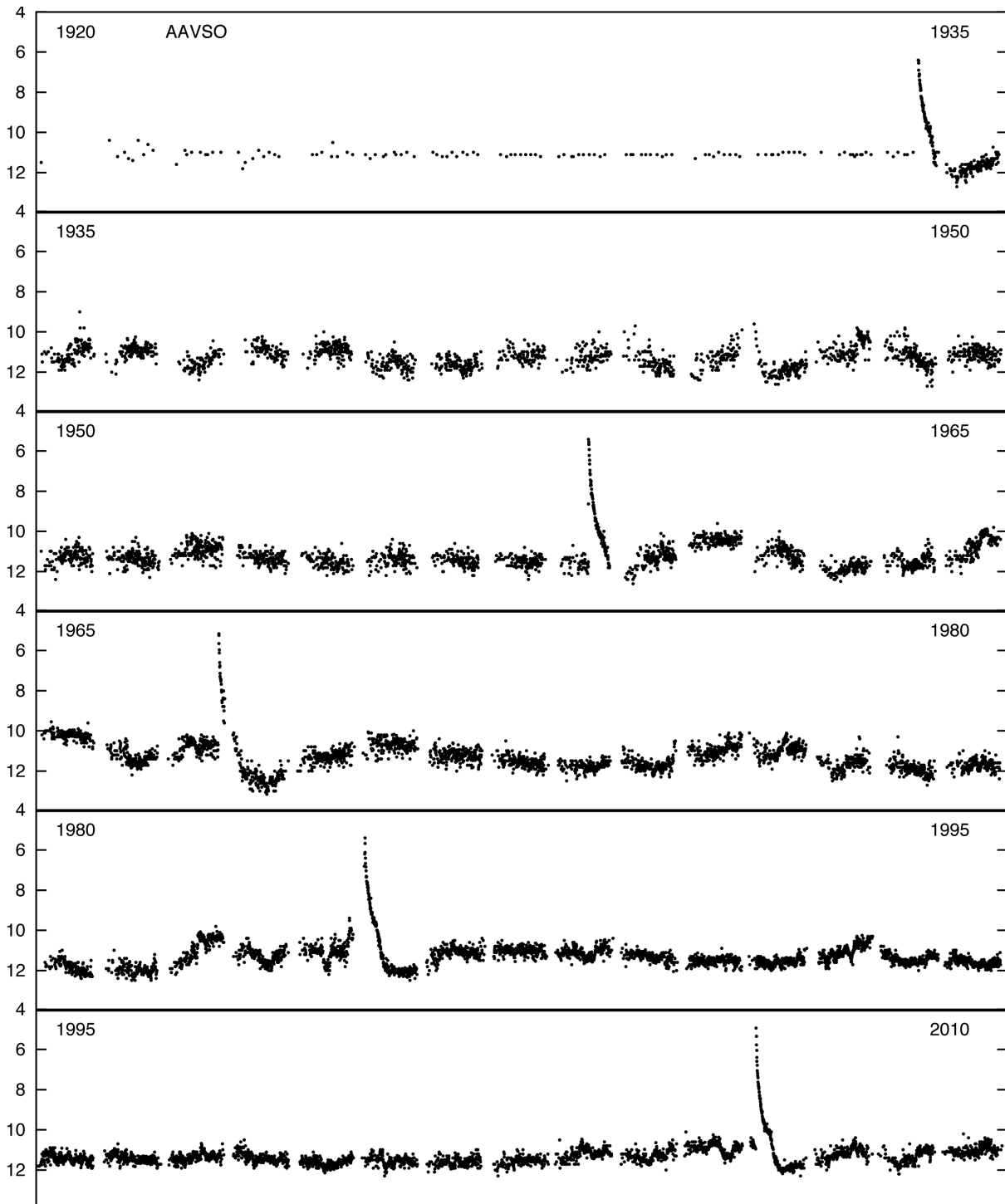
SS Cygni is the brightest dwarf nova type (U Gem subclass) cataclysmic variable in the northern hemisphere. These stars are close binary systems consisting of a red dwarf star—a little cooler than the Sun—and a white dwarf with an accretion disk around it. At approximately 50-day intervals, SS Cyg brightens (erupts) from magnitude 12.0 to 8.5 due to material from the accretion disk falling onto the white dwarf. The individual intervals between outbursts can be much longer or shorter than 50 days. More information on this fascinating star can be found at https://www.aavso.org/vsots_sscyg



RS Ophiuchi (recurrent nova)

1920–2010 (1-day means)

RS Ophiuchi is a recurrent nova. These stars have multiple outbursts ranging in brightness from 7 to 9 magnitudes. The outbursts occur at semiregular intervals ranging from 10 to more than 100 years, depending on the star. The rise to maximum is extremely fast, usually within 24 hours, and the decline may be several months long. The recurrent outbursts are always identical. See https://www.aavso.org/vsots_rsoph for more information on this star.

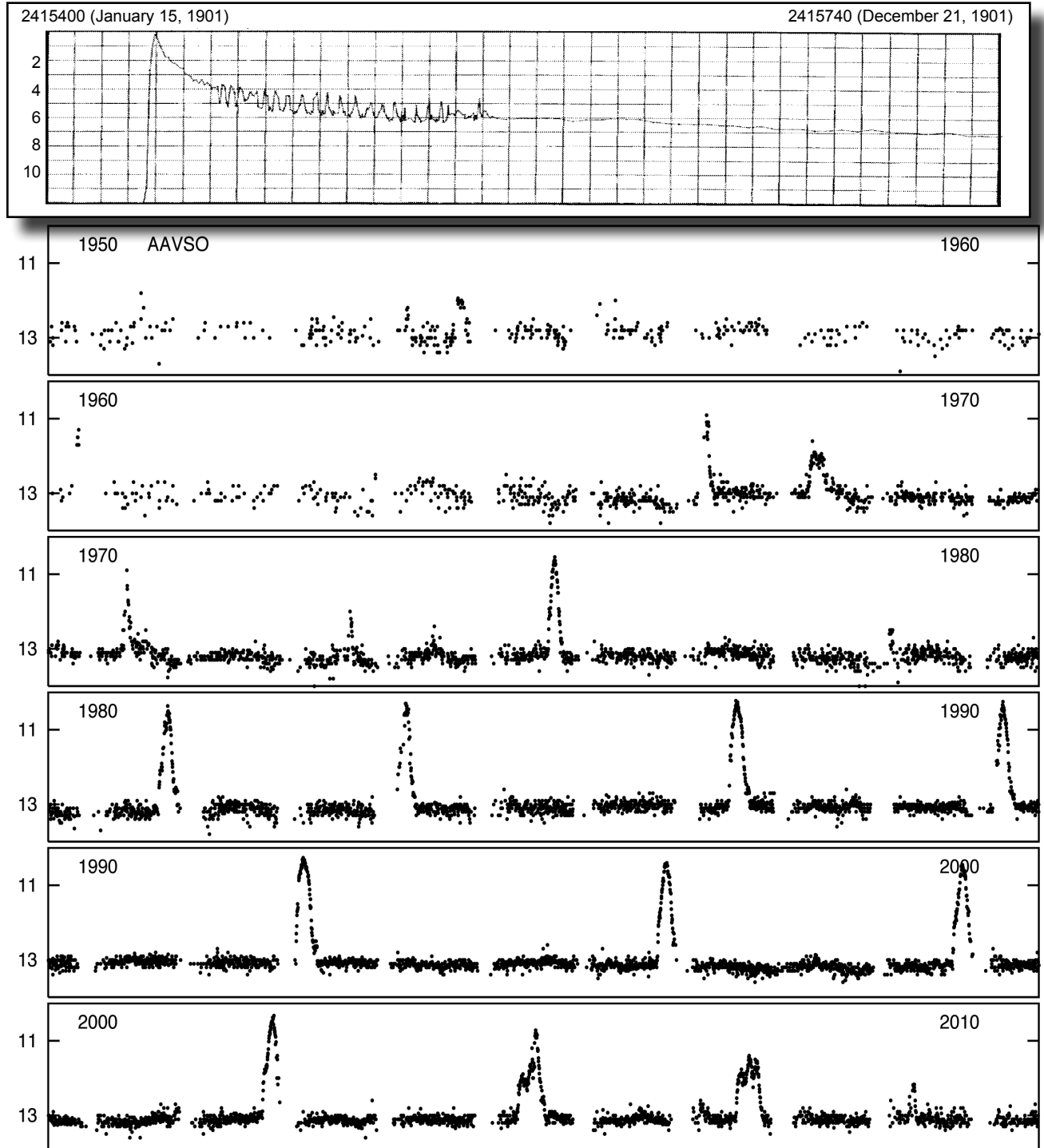


GK Persei (nova)

1901 Nova-like outburst (from *Harvard Annals*)

1950–2010 (1-day means)

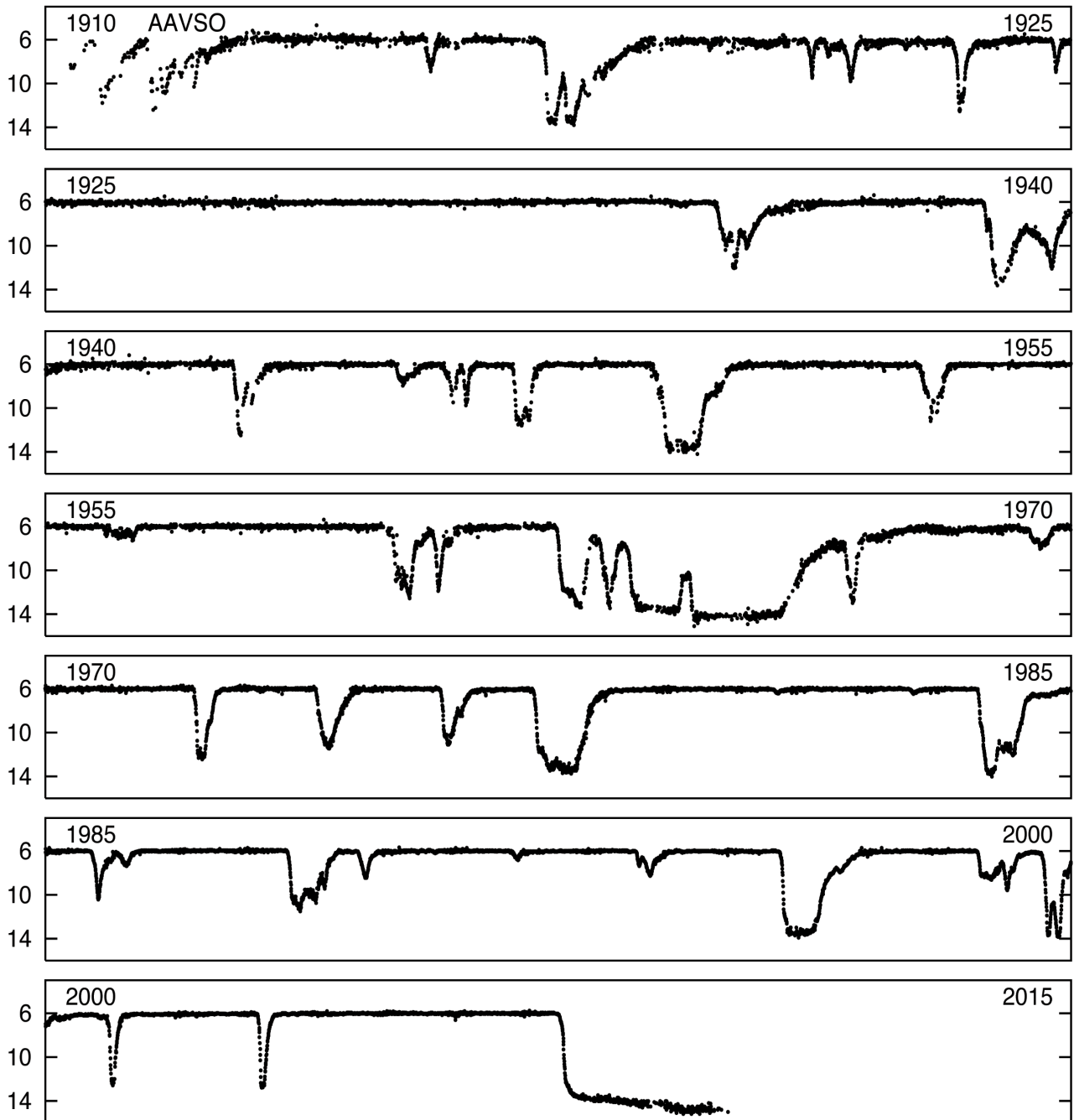
GK Persei is a bright nova of 1901. In this close binary system, eruptions occur due to explosive nuclear burning, on the surface of the white dwarf, of material transferred from the red dwarf. GK Persei is unique in that after the initial fading of 30 days, the star showed semiperiodic rapid variations for three weeks and then slowly continued to fade. Decades later, it began having small dwarf nova-like outbursts about every three years. For more information see https://www.aavso.org/vsots_gkper



R Coronae Borealis

1910–2010 (1-day means)

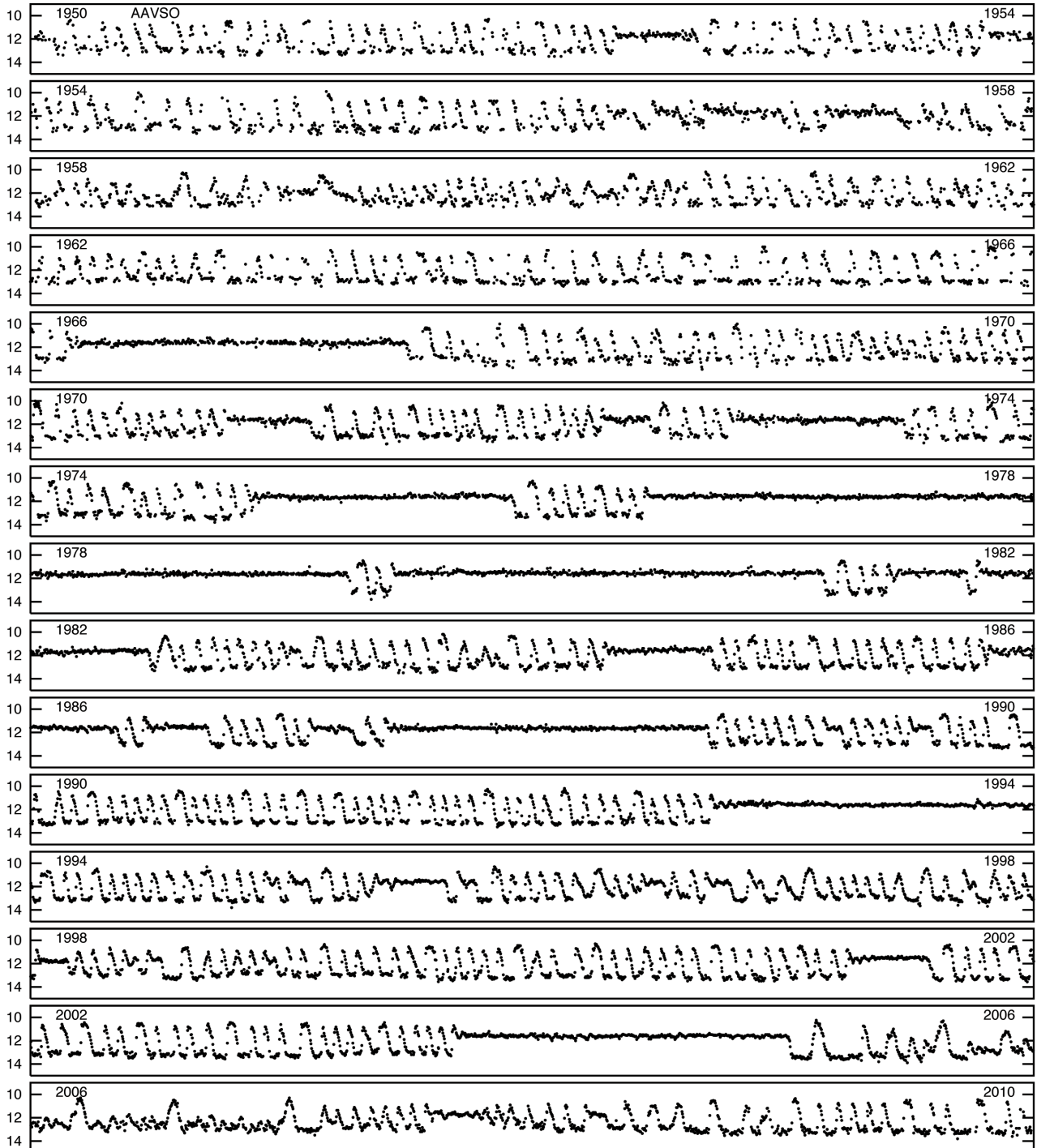
R Coronae Borealis is the prototype of its class. These rare supergiant stars have rich carbon atmospheres. They spend most of their time at maximum brightness but at irregular intervals rapidly fade 1 to 9 magnitudes. The drop in brightness is thought to be caused by carbon clouds expelled from the atmosphere of the star. For more information see https://www.aavso.org/vsots_rcrb



Z Camelopardalis

1950–2010 (1-day means)

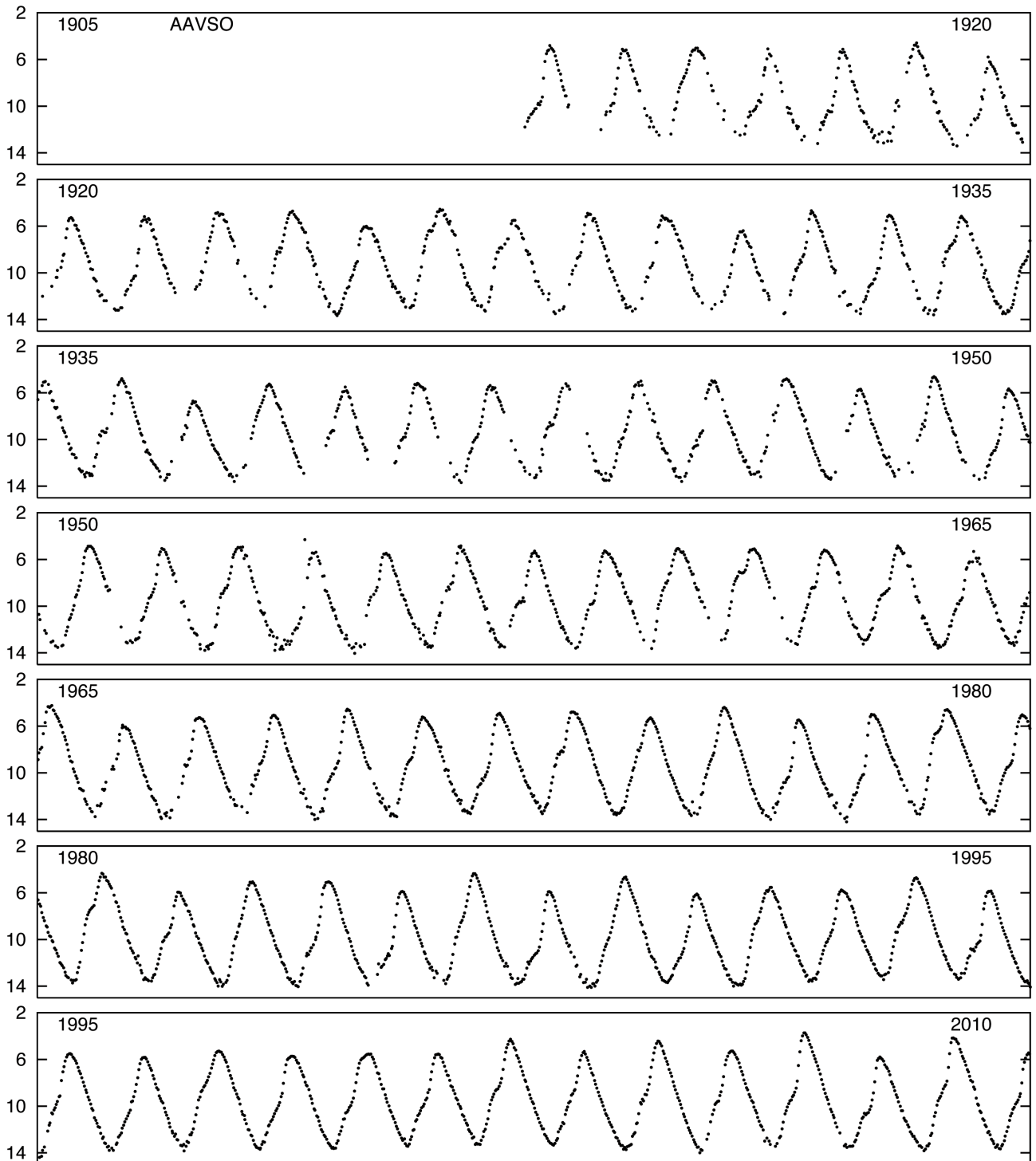
Z Camelopardalis is the prototype star of a sub-class of dwarf nova-type cataclysmic variables. It has U Geminorum-like dwarf nova outbursts about every 26 days, when it brightens from magnitude 13.0 to 10.5. At randomly spaced intervals, it experiences “standstills” in which the brightness stays constant, about one magnitude below normal maximum, for a few days to 1000 days. Standstills occur when the mass transfer rate from the solar-type secondary star into the accretion disk surrounding the white dwarf primary is too high to produce a dwarf nova outburst. See https://www.aavso.org/vsots_zcam



Chi Cygni (Mira)

1905–2010 (7-day means)

Chi Cygni (or Khi Cyg) is a Mira-type star that shows one of the largest variations in magnitude known. Typically it brightens and fades from 5th to 13th magnitude but in August 2006 it got as bright as 3.8. The average period of this brightness fluctuation is 407 days.



R Scuti (RV Tauri)

1910–2010 (7-day means)

R Sct is an example of an RV Tauri type star. These stars have characteristic light variation that show an alternating pattern of deep (primary) and shallow (secondary) minima, with the amplitude varying by as much as 4 magnitudes. The period is defined as the interval between two deep minima and ranges from 30 to 150 days. They are typically of spectral type F to G at maximum and K to M at minimum. See https://www.aavso.org/vsots_rsct for more information on R Sct.

