

**140 Years of the “Extended” Solar Cycle: Predictability, expectations for SUNSPOT Cycle 25 and what is to follow**

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Starting with 22 years of contemporary observations of the solar corona we readily see bands of activity- long-lived patterns that mark out the 22-year solar magnetic activity cycle. The modulation of these bands can explain the landmarks of the sunspot cycle – that only occurs over about half of the magnetic cycle span. Exploiting routine observations of the green-line corona that go back to the late 1930s and of solar filaments that go back to the dawn of H-alpha photography in the late 1870s we demonstrate that the 22-year magnetic cycle is extremely robust and is predictable through this continuous observational record. Using this record, we explore the “climatology” of the system and the root drivers of solar variability and activity. Given the apparent predictability in the system we look at sunspot cycle 25, how it has evolved since first appearing in 2012/2014, what it may yield in terms of activity, and also what may follow.....