

## **The Waldmeier Effect**

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The Waldmeier Effect is the observation that the rise time of a sunspot cycle varies inversely with the cycle amplitude: strong cycles rise to their maximum faster than weak cycles. The shape of the cycle and thus the rise time does not depend on the scale factor of the sunspot number and can thus be used to verify the constancy of the scale factor with time as already noted by Wolfer (1902) and Waldmeier (1978). We extend their analysis until the present using the new SILSO sunspot number (version 2) and group number and confirm that the scale factors have not varied significantly the past 250 years. The effect is also found in sunspot areas, in an EUV (and F10.7) proxy (the daily range of a geomagnetic variation), and in Cosmic Ray modulation. The result is that solar activity reached similar high values in every one of the (17th?) 18th, 19th, and 20th centuries, supporting the finding that there has been no modern Grand Maximum.