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(Student Speaker)
The solar activity is directly related to its variable magnetic field, which is generated in the Sun's convection zone. The solar activity increases and decreases with the solar cycle and is popularly measured by the sunspot number (SSN). This activity creates space weather and impacts the interplanetary and Earth's atmosphere. The sunspot number (solar cycle) prediction provides a cutting-edge advantage in comprehending space weather, thereby enabling the safeguarding of space assets and mitigating their potentially hazardous consequences on society. However, predicting the solar cycle is challenging but several physics-based methods are used to forecast the cycle strength. We have shown an aspect of the Waldmeier effect to predict the solar cycle strength and its physical connection with the polar field rise rate, which makes the solar cycle prediction possible much earlier. Using the polar field rise rate after the polar field reversal we can predict the upcoming cycle strength about 8 to 9 years before the solar cycle maximum. Our prediction of cycle 25 based on the polar field rise rate is 137 +/- 23, which shows that cycle 25 will be slightly stronger than cycle 24.
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