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Machine and deep learning in solar flare forecasting

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Solar flare forecasting can be realized by means of either the numerical solution of model equations or the analysis of magnetic data by means of artificial intelligence techniques. Here we consider this second approach and discuss how neural network optimization and forecasting assessment by means of skill scores are deeply intertwined. A special focus is also given to the interpretation of data descriptors in terms of their impact on the prediction effectiveness. Applications will be concerned with magnetograms recorded by SDO/HMI, in the case of both point-in-time images and time series of magnetogram frames.

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