TENTATIVE NEURAL NETWORK FORECAST
OF THE 24th SOLAR CYCLE

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The long-term solar cycle predictions rely on meagre modelling of underlying physical foundation. Waiting for a full understanding of the solar cycle that would provide the basis of physical predictions methods we must rely on empirical ones. There are many forecasting techniques, all with ups and downs. We choose to attempt the forecasts of several indices of the 24th solar cycle using the neural network method although the method still suffer from basic problems such as data pre-processing, architecture selection and parameterisation. For the sunspot relative number, R, June 2006 as the next minimum epoch with a value around 18 and, December 2009 as the next maximum epoch with a value of around 145 were obtained. Using the Ohl's method the predicted next R maximum is 138, not far from the previous forecast of 145. For the 2800 MHz solar radio flux, the next minimum epochs with an approximate value of 75, on May 2006, and the next maximum epoch with a value of about 195, on December 2009, were forecasted. The forecasts of the geomagnetic aa and Dst indices were also done with the same pre-processing (gaussian monthly smoothed mean) and the same neural net for the same forecast horizon. The aa forecast gives for late 2008 an absolute minimum value around 11 and the Dst forecast gives for mid 2008 a local maximum around −19. The opposite phase behaviour of the two indices is clearly maintained over the forecast interval.