

## Space weather forecast archives at NICT: handwritten solar activity charts

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About 40 years ago from 1978 to 1999, at Hiraiso Branch, Radio Research Laboratory; present Space Environment Laboratory of National Institute for Information and Communication Technology (NICT) in Japan, space environment data had been recorded in "solar activity chart" by hand for the operation of the radio wave warning service. The charts were created based on URSIgram codes, which were developed to facilitate the rapid exchange of information by telex in periods when internet was not available. Based on the exchanged codes, sunspots transitions and solar flare occurrences on the solar surface, these effects on shortwave propagation, geomagnetic disturbance, and cosmic ray flux over Japan were written in the solar activity charts together with comments and sketch by recorders. One chart was created for each Bertel's solar rotation number between No. 1974 and No. 2254, corresponding to sunspot cycles 21 and 22. We realized that the data exchange is almost only once a day from each observation point and charts was accumulation of the available data in real-time at that time. It might be quite difficult to decide future forecast from such a limited real-time data set. Currently, we are digitizing the solar activities charts and the data shown there. In this poster, we present examples of solar activity charts and possible real-time data set and time delay, as well as the verifying result of the solar flare / geomagnetism storm forecast at the time.

Keywords: Space Weather Archive, URSIgram