

A NEW APPROACH TO THE HOURLY MEAN COMPUTATION PROBLEM WHEN DEALING WITH MISSING DATA

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Geomagnetic observatory records are unavoidably affected by primary data interruptions which, in turn, may have possible effects on the accuracy of the definitive data derived from them. One of the products most widely used by the scientific community is the mean hourly values, immediately obtained from the primary minute values of the geomagnetic field. Although some precepts have already been proposed and used, a definitive criterion regarding the procedure to follow when dealing with missing data has not yet been established. This could be seen in the last IAGA meetings and workshops, where several constructive opinions were put forward in this respect. The present discussion is devoted to analyzing the effects that different amounts of missing data have upon the accuracy of the means, a necessary step before establishing a definitive rule as to how to deal with these situations. In this statistical approach, we propose a new criterion based on the relative value of the root mean square error (between actual and computed means) with respect to the natural magnetic field variations of the original hourly interval.

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