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Environmental Remote Sensing by GPS -Section3- Action of wind
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青戸 省二 [1*]
Shouji Aoto[1*]

[1] なし
[1]None

The previous studies of this series of studies have suggested that GPS radio wave (L1) is influenced by atmospheric pollution, atmospheric tide, solar radiation and geomagnetism, which have lead up to the presumption that wind influences to GPS radio wave, too.

The data of wind direction and wind velocity, which were incited from Soramame-kun of NIES web-pages, were used to transform to NS and EW components, which were analyzed in direct correlation with GPS point positioning data, and in indirect correlation with atmospheric pollution, atmospheric tide, solar radiation and geomagnetism, i.e. double correlation with direct correlation between GPS data and those factors.

As a result, NS and EW components have specific distribution of correlation. The correlation distributions of atmospheric pollution had high values in the area of 250˜300km distance. Those of wind have similar rings but different patterns. NS components have a zero correlation belt, in each side of which there are observed inverse correlations. EW components do not have such patterns, but only have ring-shape correlation.

Therefore, it is clear that wind influences to GPS radio wave in cooperation with other factors. But, the mechanism of wind action to GPS radio wave is left unclear. It is necessary to study the geoelectromagnetic mechanism of wind occurrence from the meteorological viewpoint.

キーワード: GPS, wind, atmospheric pollution, correlation coefficient, Soramame-kun
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