

Seasonal variation of leveling data in Omaezaki region(Third report)

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We have been analyzing the leveling data along the route between Kakegawa to Omaezaki. As seasonal variation is seen on the leveling data, we have been researching what causes this variation. The close inspection on the leveling data in each section revealed that the source of seasonal variation cannot be refraction of the line of sight according to the characteristics of variation patterns. We pointed out that thermal expansion of a invar tape on north staff can be a cause of seasonal variation, as the leveling route goes mostly straight from northwest to southeast. We also pointed out that the reason that the amplitude of seasonal variation became smaller after year 2000 could be the change of observation guideline on October 1999.

We analyzed other leveling data sets, which are obtained by Shizuoka prefecture. Very frequent observations, once per two weeks, have been carried out from SF2129 to 2601 via 2602-1. The result of this survey by Shizuoka prefecture also shows a seasonal variation on observed height difference. The observation guideline is defined as same as that of GSI. Observation distance on a sight should be shorter than 40m. The level used for observation was Wild N3 and observation procedure was pointing and reading twice until the guideline of survey was changed on April 2000. The fact that amplitude of seasonal variation became smaller after the change of guideline is approved by the AIC.

The condition of sunshine on the observation is difficult to estimate, as only the weather at the beginning and ending is recorded. We are planning to observe the transition of temperature on the invar tape turning from shade side to sunny side.