

超高分解能気温センサーを用いた気球観測による乱流の直接測定の試み
An trial of direct monitoring of turbulence intensity by using the balloon-borne high-resolution temperature sensor

古本 淳一^{1*}; 清水 健作²; 甲斐 浩平²; 東 邦昭¹; 橋口 浩之¹

FURUMOTO, Jun-ichi^{1*}; SHIMIZU, Kensaku²; KAI, Kohei²; HIGASHI, Kuniaki¹; HASHIGUCHI, Hiroyuki¹

¹ 京都大学生存圏研究所, ² 明星電気株式会社

¹Research Institute for Sustainable Humanosphere, ²Meisei Electric Corporation

The fine tungsten wire (10 μ m diameter) temperature sensor, whose response time is 5/1000sec on surface and 40/1000sec at around 30km altitude, were employed to detect turbulence intensities. For the temperature data at the sampling frequency of 16Hz were used for the turbulence detection. The contamination of the wake of the balloon should be carefully removed from the original data before the analysis of turbulence.

We are developing the new method to extract temperature perturbation by turbulence at the vertical wavelength shorter than the effects of pendular movement of radiosondes.

The preliminary results show very promising to detect turbulence intensities to compare with echo intensity of atmosphere radar.

The detailed scheme and first results are discussed in the presentation.