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Revisiting measurements of small scale temperature fluctuations

CHRISTIAN GEBAUER, CARLA BAHRI, GILAD ARWATZ, YUYANG FAN, MARCUS HULTMARK, Princeton University — It is well known that high frequency temperature measurements are attenuated due to a non-flat frequency response. Based on the temperature correction model proposed by Arwatz et. al (under review), new experimental data is compared with existing measurements. Focus is laid on structure functions, probability density functions, and the behavior of small scale temperature fluctuations. Additionally, a new temperature sensor developed at Princeton University is utilized for further improvement of temperature measurements. The effect of temporal resolution on the temperature spectrum is investigated by comparing uncorrected data to corrected data and data acquired with the new fast response temperature sensor.

Christian Gebauer
Princeton University

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