



Large local temperature changes versus passages of atmospheric fronts: a case study for Prague

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We investigate whether, and to what extent, strong local temperature changes are related to passages of atmospheric fronts. More specifically, we relate large warmings in winter with passages of warm fronts and large coolings in summer with passages of cold fronts. In particular, we hypothesize that the days with large temperature changes are accompanied with passages of corresponding atmospheric fronts more frequently than other days. We investigate this for Prague, for which data on front passages, with the accuracy to one hour, are available. Our results show that a warm (cold) front passes the day with or the day before a strong warming (cooling) in winter (summer) significantly more frequently than in all other cases. The significance is assessed by a two-sample Kolmogorov-Smirnov test. We employed a threshold of plus / minus 5°C to define a strong temperature change; nevertheless, results are not sensitive to a specific choice of this threshold within reasonable limits.