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**Vertical Lapse Rates of Air Temperature in the Kaffioyra Region (NW Spitsbergen)
in Summer Seasons, 2005-2010**

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The high level of warming observed in the Arctic during the last two decades in particular has been one of the main reasons for the marked changes occurring in both the natural and anthropogenic landscapes of this part of the world. However, our knowledge of the Arctic climate comes mainly from the coastal meteorological stations located usually below 100 m a.s.l. Mass balance investigations of inland glaciers require more precise information about precipitation and temperature behaviour in neighbouring areas. More reliable explanations for other environmental changes occurring in the Arctic also need better data concerning topoclimatological changes observed over a longer perspective.

In this paper changes in the surface air temperature from coastal to glaciated mountainous areas are investigated using hourly data gathered during summer expeditions to Spitsbergen organised by the Nicolaus Copernicus University in the years 2005-2010. A common observation period for all the expeditions was 21st July-31st August. For some areas the results obtained from summers 2005-2010 are compared with older data gathered for four years between 1979 and 1989.

Significant warming (0.8-1.6°C) occurred between the periods compared. The rate of warming, however, was two times greater in the coastal zone than in the firn field of the Waldemar Glacier lying 380 m a.s.l. As a result, a marked decrease of vertical lapse rates of temperature by about 0.2°C/100 m was noted.

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