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KING GEORGE ISLAND CLIMATE VARIABILITY STUDY

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Recent investigations of Southern Hemisphere climate change parameters distributions indicate that the Antarctic Peninsula area is the main hemispheric “hot spot”. This phenomena is traced in the surface and troposphere temperature warming trends, in the prevailing of meridional form of large-scale atmospheric circulation system, surface pressure decreasing, sea ice retreat tendency, ozone decreasing, UV-B irradiance level increasing, Antarctic Circumpolar warm water propagation over Peninsula shelf, in appearance of natural emissions of greenhouse gases from ornitogenic soils at sub-Antarctic Islands, rapid expansion of *Deschampsiaa antarctica* over ice free area, penguins population systematic change and so on. However, the Climate and General Circulation Models based on modern atmospheric trace gases content scenarios are not able to reconstruct evident warming conditions near Antarctic Peninsula. Therefore, study of current and historic regional climatic variations based on observed data is very important for numerical model development using different relationship between Antarctic Climate System parameters. Some ideas for physical processes parameterisation can be obtained from diagnostic estimates of Antarctic Climate system parameters distribution and from their variability. The King George Island climate variability picture region based on 12 manned stations data completed with SCAR READER Projects information resources and some national datasets is presented. Current meteorological, upper air sounding, solar radiation, ozone, sea ice, biology, permafrost and greenhouse gases concentration data for total measurements period are used for unique local climate regime formation description Interannual tendencies of seasonal surface and troposphere temperatures over King George Island are more prominent than those observed in the continental Antarctica. Results of prevailing large-scale atmospheric circulation forms statistics obtained from AARI synoptic archive for 1956-2005 period are presented. Feedbacks between temperature, extra-tropical cyclone climatology parameters and sea ice extent for both sides of Antarctic Peninsula are demonstrated.