



## **Argentina Island ice caps dynamics in Antarctic Peninsula climate change conditions**

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Recent observation of the small ice cap of Galindez Island shows significant changes since the 1950s. The mean annual surface air temperature of the island has increased by over 2C° during the past 40 years to around -4°C. The most noticeable change to the ice cap has taken place in a bay opposite Wordie House. Here the ice rests on rock that is close to mean sea level and is hence affected by marine erosion at high tide and observed seawater warming. The latest observations of the seawater temperature and salinity in Argentine Island Archipelago region show the strong within-year and interannual variability. During winter the seawater temperature changed from -1.9°C to -1.0°C without considerable interannual variations. The seawater temperature anomaly to +4.2°C (and to +5.0°C in open water area) was observed during the 2000-2001 summer season. The 2003-2004 summer seawater temperature dynamics shows the anomalous conditions again. The thermal atmosphere states analyze of the averaged Faraday/Vernadsky data for four warmest and coldest months within 1945-2001 have shown the positive trends. The average temperature has increased from -11.0°C to -6.1°C (0.089°C/year) within coldest period, and from -0.6°C to +0.65°C, (0.023°C/year) within warmest. The detailed geomorphology survey of the Galindez ice cap and ice caps of Argentine Island archipelago based on the GPS and photogrammetric started in 2002 to produce the precision geodesic data for ice cap monitoring and the evolution model creation. The present observations show a reduction in ice cap volume of around ten per cent in eight years, suggesting that Galindez ice cap could disappear within a century.