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Geophysical measurements on Piz Boè rock glacier (Dolomites, Eastern Italian Alps)

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Glacier inventories reported a small glacier in the area near the Piz Boè peak in the Bellunesi Dolomiti (2900 m a.s.l.).but at present, this glacier is almost extinct being its area of about 0.04 km2. Close to the exposed glacier, a debris ice covered glacier is present and in 2005 a preliminary Electrical Resistivity Tomography (ERT) and geosismic campaign were carried out on it, along a S-E transect. In summer 2010, in the framework of the Permanet Project (Alpine Space Programme), the ERT measurements were repeated along the same section and the investigation was extended to a new orthogonal W-E oriented transect, along the maximum slope gradient. In this work we present the results of the 2010 campaign and we compare them with the previous data. S-N oriented profile reveals the presence of an ice cored rock glacier extending more than 23 m depth, about 100 m long and with a surface active layer of about 1-2 m characterized by boulders mixed to fine grained debris. The orthogonal section shows ice cored rock glacier in the upper part and a decreasing resistivity towards South at the front of rock glacier. Surface boulder layer is thicker in this section, especially in the upper part of the slope. The two profiles taken in 2005 and 2010 are similar and no evident changes in the ice thickness are recorded. Unfortunately, no air temperatures data are available for this time period since a total meteorological station was installed only in September 2010. The behaviour of this rock glacier, inferred from the ERT measurements, is discussed in the light of the air temperature and snow depth data recorded at the Ra Vales (ARPAV), at 2615 m a.s.l., not so far from Piz Boè.