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Post-Glacial Rebound on the Juneau Icefield

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The "Panhandle Region" in southern Alaska is characterized by an enormous ongoing ice mass loss since the Little Ice Age. As a result the land uplift rates due to the postglacial rebound process are among the largest of the world. The glacier region is regularly observed within the "Juneau Icefield Research Program" JIRP for many years. Since 1995 GPS measurements have been conducted additionally to retrieve the balances of masses and the postglacial rebound which takes place on the Juneau Icefield. In a master thesis these data were evaluated for a combined solution with the Bernese GPS Software 5.0 and connected to the geodetic reference frame ITRF2000. The uplift rates from this analysis were compared to a combined postglacial rebound model of this region. The annual ablation rates derived from geodetic measurements on the Juneau Icefield validate the continuous melting process. The obtained results based on this thesis are shown and compared to present model predictions of vertical land motion in southern Alaska. In the near future those GPS measurements shall contribute to an improvement of this model.