LONG DURATION STRATOSPHERIC BALLOON GRADIENT GEOMAGNETIC BALLOON MISSIONS AS A SUPPORT OF A *SWARM* MISSION

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IZMIRAN has designed the balloon system which measures the total magnetic field at three altitudes with separations of 3 and 6 km. There are a few launching pads where balloons with long duration of flight could start on a regular basis. Most of the pads are located in Polar Regions: Longyearbyen (Svalbard Islands, Norway), Esrange (Kiruna, Sweden) and McMurdo (Antarctica). As for Russia, there are two launching pads: the first one is located near town Volsk (Volga river region) and the second one – at peninsula Kamchatka (Far East). There are a few pros for using a balloon missions as a support a satellites geomagnetic missions, particular, *SWARM*: a) Balloon geomagnetic measurements could provide more detailed information about lithospheric field compared with the satellite measurements; b) The data from balloon magnetometers could be used for validating geomagnetic field models; c) The obtained data can be used for constructing of the field models; d) Balloons could allow for geomagnetic field measurements in remote regions - oceans and polar caps, where ground based and near-Earth data coverage is poor; e) Measurements of geomagnetic field vertical gradients during balloon flights allows more accurate separation of lithospheric signal and signals from the external sources. IZMIRAN plans to launch a few flights of balloons with magnetic gradiometer onboard during *Swarm* mission. However, efforts of only IZMIRAN will be far insufficient for proper solution of aforementioned problems. In this context, we invite balloon community and geomagnetic community to think about: how people can use available experience of long duration balloon missions for geomagnetic research, in particular, for supporting *Swarm* mission?