CryoSat Data Quality: Status and next evolutions over ice and ocean surfaces

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CryoSat is the first ESA polar-orbiting satellite specifically designed to measure the changes in the thickness of polar sea-ice and, in the elevation of the ice sheets and mountain glaciers. Going beyond its ice-monitoring objective, CryoSat is also demonstrating to be a valuable source of data for oceanographic applications ranging from low to high latitudes. Two levels of ESA products are distributed to the scientific user community: the Level 1b products essentially contain average echoes collected along the ground track, while the Level 2 products contain elevations and associated geophysical parameters retrieved from these echoes. To enable their full exploitation, these products have to meet the highest quality, which is assessed through routine Quality Control and Validation activities. Based on the outcomes from these activities, and the feedback from the Scientific Community, the product periodically evolves in order to accommodate a wide range of new scientific and operational applications over the Sea ice, the Land Ice and the Ocean domains. The main objectives of this paper are to give an overview of the CryoSat product characteristics, to present the main outcomes from the quality assessment activities and to discuss future algorithms and product format improvements expected with the next processing Baselines.