



Coastal zone environment measurements at Sakhalin Island using autonomous mobile robotic system

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To perform continuous complex measurements of environment characteristics in coastal zones autonomous mobile robotic system was built. The main advantage of such system in comparison to manual measurements is an ability to quickly change location of the equipment and start measurements. AMRS allows to transport a set of sensors and appropriate power source for long distances.

The equipment installed on the AMRS includes: a modern high-tech ship's radar «Micran» for sea waves measurements, multiparameter platform WXT 520 for weather monitoring, high precision GPS/GLONASS receiver OS-203 for georeferencing, laser scanner platform based on two Sick LMS-511 scanners which can provide 3D distance measurements in up to 80 meters on the AMRS route and rugged designed quad-core fanless computer Matrix MXE-5400 for data collecting and recording. The equipment is controlled by high performance modular software developed specially for the AMRS.

During the summer 2016 the experiment was conducted. Measurements took place at the coastal zone of Sakhalin Island (Russia). The measuring system of AMRS was started in automatic mode controlled by the software. As result a lot of data was collected and processed to database. It consists of continuous measurements of the coastal zone including different weather conditions. The most interesting for investigation is a period of three-point storm detected on June, 2, 2016.

Further work will relate to data processing of measured environment characteristics and numerical models verification based on the collected data.

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