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**The Second Antarctic Expedition of *Araon*
(2011/2012)**

The Second Antarctic Expedition of *Araon* (2011/2012)

Background Paper Submitted by Korea (ROK)

The main missions of *Araon* in 2011/2012 austral summer season were to support CEE (Comprehensive Environmental Evaluation) required for the construction of the Jang Bogo Antarctic Research Station, and to conduct the research programs as well as provide logistical support to the King Sejong station. For around 6 months, *Araon* successfully completed the Antarctic expeditions for the missions.

After *Araon* departed its mother port, Incheon on 4th October 2011, reached the Antarctic King Sejong Station via Punta Arenas in Chile for logistics resupply mission. At this logistics operation, *Araon* shared her cargo space with the Chinese program for cargo transportation to the Great Wall Station.

After providing logistical support to the station, *Araon* focused on supporting the scientific expeditions to the area of Australian Antarctic Ridge, Terra Nova Bay, Amundsen sea: total 8 major research projects numbered (i) ~ (viii) below were conducted:

(i) “Petrogenic investigation of the 160°E segment in the circum-Antarctic Ridge”;

(ii) “Investigation of submarine tectonic activity using ocean bottom seismographs (OBSs), Antarctica”; (iii) “Interaction between cryosphere and lithosphere near the Jang Bogo Station: Integrated monitoring system for the David Glacier and study on evolution of the glacier”

(iv) “The 2nd Antarctic Research Construction of New Antarctic Station (CEE)”: Especially, The researchers for CEE on the Jang Bogo Station carried out sea mapping; long-term monitoring of movement and mass balance of glaciers; snow pits; geological survey for construction; monitoring for ocean and coastal ecosystem, etc. With supporting these activities, *Araon* shared her cargo space with Italy for containers transportation to the Mario Zucchelli Station near the surveying area,.

(v) “Sea ice zone in Amundsen Sea as a model system to observe the global warming and its impacts”;

(vi) “Dynamics of Southern Ocean ecosystem and its buffering capacity of climate gases”;

(vii) “A Development of the Safe Operation Methodology of Ice-class vessel at Arctic Sea Route and the Cryogenic Evaluation Techniques for the Ice Performance”;

(viii) Reconstruction and Observation of Components for the Southern Annular Mode (SAM) to Investigate the Cause of Climate Change at West Antarctica”.

Meanwhile as a Russian fishing trawler ‘Sparta’ was stuck in a glacier near the Ross Sea of the Antarctic Ocean on December 16, 2011. *Araon*, which had been anchored in New Zealand (Christchurch Harbour) before survey on Terra Nova Bay, immediately embarked on rescue activities in close cooperation with the rescue control centre at New Zealand on 17th December, 2011. After successful saving all 32 crew members of the Sparta, and providing the repair operation to Sparta, and guiding it vessel to an ice-free zone on December 28, 2011, the vessel continued its way to Terra Nova Bay.

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