10,000m級無人探査機「かいこう」ビークル漂流事故の原因究明

渡邊　正之*　田代　省三*　橋本　菊夫*　門馬　大和*

Abstract

The full ocean depth ROV Kaiko (Fig.1) of Japan Marine Science and Technology Center, JAMSTEC, started construction in 1993 in order to carry out surveys at any depth in the world oceans. On May 29, 2003, after completing its 296th dive at a depth of 4675 m, the Kaiko operators could not mate the vehicle and the vehicle end of the secondary cable was fractured. The search for the vehicle was carried out until June 21st from the surface and from the air without success.

Kaiko, a full ocean depth ROV system which JAMSTEC spent and developed for six years, is the only investigation system capable of reaching the Challenger Deep, the deepest trench in the world. Kaiko symbolizes the latest technology of JAMSTEC.

This accident is the worst since JAMSTEC was founded. JAMSTEC has recognized this accident as a serious problem, and established an accident investigating committee to investigate the cause of the accident and to suggest preventive actions. Professor Ura Tamaki of the University of Tokyo, Institute of Industrial Science chairs this committee. The committee presented the first report to JAMSTEC on July 30. The contents of the first report described the cause of the accident and a proposal for JAMSTEC to implement needed accident management.

This paper summarizes the report of the accident investigating committee.

In factory testing, we knew two problems. The first one is that there were some structural problems in the cable termination. Secondary, the strength members would deteriorate by bending under high pressure exceeding 1000 kg per square cm.