

## **Styles and Deposits of Shallow-Water Eruptions 4800 $^{14}\text{C}$ BP in Karymskoye Intracaldera Lake (Russia)**

M Belousova (Institute of Volcanic Geology and Geochemistry, Petropavlovsk-Kamchatsky, 683006, Russia; e-mail: belousov@mail.ru); A Belousov (GEOMAR, Wischhofstr 1-3, 24148 Kiel, Germany; e-mail: belousov@mail.ru)

Karymskoye intracaldera lake (4 km across; maximum depth 70 m.) is located in the Eastern Volcanic Belt of Kamchatka Peninsula (Russian Far East). Studies of the caldera were recently intensified due to 1996 underwater eruption in the lake. The caldera was formed in the late Pleistocene (28-48 ka BP). It is crossed by a major NNE fault along which rare eruptions of basic magma have occurred in the Late Pleistocene Holocene. Our studies have shown that prehistoric activity in the lake (on the submerged part of the fault) included two closely spaced in time eruptions  $\sim$ 4800  $^{14}\text{C}$  BP. The eruptions formed underwater tuff ring, part of which is currently exposed onshore. The first of the eruptions left deposits similar to those of the 1996 eruption. The deposit is composed of monotonous, rhythmically intercalated parallel, normally graded, grain-supported beds of moderately sorted ash lapilli. Juvenile basaltic clasts (vesicularity, 9% - 49%; mean 28%) constitute >95% of the deposit. The eruption is interpreted as a Surtseyan type that occurred at the same water depth as the 1996 eruption (about 50m). The second of the 4800  $^{14}\text{C}$  BP eruptions deposited extensive cross-laminated base surge deposits with abundant accretionary lapilli. Juvenile clasts have vesicularity 18% - 65% (mean 52%) – significantly larger than the vesicularity of juvenile clasts from the first and the 1996 eruptions. The eruption interpreted as Taalan type that occurred in very shallow water or even onshore, penetrating water-saturated products of the first eruption.