ANNEX 2: Bibliographical references for the undersea feature **JANE BASIN**.

1. JOURNAL OF GEOPHYSICAL RESEARCH, VOL. 96, NO. B2, PP. 2019-2038, 1991 doi:10.1029/90JB01721

Heat Flow in Jane Basin, Northwest Weddell Sea

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The **Jane Basin** is a marginal basin situated immediately to the east of the South Orkney microcontinent in the Northwest section of the Weddell Sea. Thirty-five heat flow measurements made in the **Jane Basin** ranged in value from 67.5±4.3 to 92.1±3.0 mW/m^2. Excluding values that were corrected for tilting or were on the very edge of the basin, the remaining 28 values range between 75.0±8.0 and 84.6±9.1 mW/m^2. Magnetostratigraphy on the recovered core from Ocean Drilling Program hole 697, which was drilled in **Jane Basin** to a depth of 322 m, allowed sedimentation rates to be calculated back to 4.5 Ma. Single-channel seismic reflection data from RSS *Shackleton* allowed estimations of total sediment thickness for the **Jane Basin** to be made. We calculate that the measured heat flow is only 86ï 89% of the actual heat flow as a result of sedimentation. Heat generation in the sediments contributes 1.5ï 1.9 mW/m^{2}to the total heat flow. The corrected heat flow gives an age for the **Jane Basin** of between 25 and 32 Ma from age-versus-heat flow comparisons, similar to the age determined from basement depth. The Scotia Sea, located to the north of **Jane Basin** and the South Orkney microcontinent, has been dated as anomaly 10 (30 Ma) and younger. Our calculated age for the **Jane Basin** would indicate that it may have been created prior to the initiation of seafloor spreading in the Scotia Sea. Evidence from major plate motions indicate that Antarctica began to rotate clockwise away from South America at about 65 Ma. Such motion may have triggered subduction along the southeast side of Jane Bank and the opening of **Jane Basin** as a back arc basin. Subduction at Jane Bank ended at anomaly 6A time (22 Ma) as evidenced by the age of the identified magnetic anomalies on the Antarctic plate found immediately to the east of Jane Bank. We conclude that **Jane Basin** opened prior to the opening of the Scotia Sea and that the spreading center that opened Jane Basin may have jumped to the Scotia Sea and produced the seafloor spreading there.

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2. Marine Geophysical Researches (2002) Volume: 23, Issue: 5/6, Pages: 413-42

Basin development subsequent to ridge-trench collision: the Jane Basin, Antarctica by F Bohoyo, J Galindo-Zaldívar, A Maldonado, A A Schreider, E Suriñach

Abstract

The **Jane** Arc and **Basin** system is located at the eastern offshore prolongation of the Antarctic Peninsula, along the southern margin of the South Orkney Microcontinent. Three magnetic anomaly profiles orthogonal to the main tectonic and bathymetric trends were recorded during the SCAN97 cruise by the Spanish R/V Hespérides. In our profiles, chron C6n (19.5Ma) was identified as the youngest oceanic crust of the Northern Weddell Sea, whose northern spreading branch was totally subducted. The profiles from the **Jane Basin** allow us to date, for the first time, the age of the oceanic crust using linear sea floor magnetic anomalies. The spreading in the **Jane Basin** began around the age of the oldest magnetic anomaly at 17.6Ma (chron C5Dn), and ended about 14.4Ma (chron C5ADn). The distribution of the magnetic anomalies indicate that the mechanism responsible for the development of **Jane Basin** was the subduction of the Weddell Sea spreading centre below the SE margin of the South Orkney Microcontinent, suggesting a novel mechanism for an extreme case of backarc development.

3. Proceedings of the Ocean Drilling Program, Scientific Results, Vol. 113 Barker, P. F, Kennett, J. P., et al., 1990 45. LATE PLIOCENE-PLEISTOCENE PALEOCLIMATE IN THE JANE BASIN REGION: ODP SITE 697 by Lloyd H. Burckle, Rainer Gersonde and Nelson Abrams

ABSTRACT

We examined diatom preservation patterns in Pliocene age sediments of **Jane Basin** (ODP Site 697) and compared them with diatom distribution in more northerly sites at various sectors of the Southern Ocean. Our data from Site 697, as well as other sites from around the Southern Ocean, support the view that there was significant ice growth on Antarctica during the late Pliocene. DSDP Site 514 in the Atlantic sector shows increased relative abundance of Eucampia antarctica, an ice-related form, in the upper part of the Gauss Chron with a larger increase just above it. With one exception, all sites included in the present study show increased relative abundance of E. antarctica in the upper part of the Gauss. Our view that there was ice growth on Antarctica during the late Gauss Chron is supported by the results from ODP Site 697. While diatoms are present and percent opal is high in the early and middle Gauss Chron (suggesting more open-ocean conditions), late Gauss sediments contain low percentages of opal and few or no diatoms. This is also true for the early Matuyama Chron. If we accept spring and summer sea-ice cover as the major suppressant of diatom productivity in the Southern Ocean, then we conclude that sea-ice covered the region around Site 697 through much of the year during this interval. Further, the absence of diatoms and the low percentages of opal in middle and late Matuyama chron sediments suggests increased sea-ice cover over the **Jane Basin** during this time. Although warmer openocean intervals are inferred for intervals near the Olduvai and Jaramillo Subchrons, most of the Matuyama Chron was marked by extensive sea-ice cover with low seasonal contrast. Our results for the early part of the Brunhes Chron are similar, at least for the **Jane Basin**. During this time, sea-ice cover over the basin apparently extended well into the growing season. In contrast, the later Brunhes Chron is marked by alternating open water (during the growing season) and extensive, almost year-round, sea-ice.