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Departamento de Geología, Universidad de Chile, Santiago

PALEOMAGNETISM OF THE NORTHERN CACHE CREEK TERRANE NEAR ATLIN, BRITISH COLUMBIA

F. Cole, R.F. Butler and G.E. Gehrels

The Cache Creek terrane is exposed along the length of the Canadian Cordillera and is composed of oceanic strata which may be exotic to North America. In the northern portion of the Cache Creek terrane near Atlin, British Columbia, paleomagnetic samples were collected from layered Paleozoic rocks at 22 sites (≥6 samples/site) on Alfred Butte. On Sentinel Mountain, samples were collected from 16 sites in layered Paleozoic volcanic and chert rocks and from a diabase sill. Principal component analysis of detailed thermal demagnetization data allowed clear isolation of a characteristic remanent magnetization (ChRM) from 17 sites at Alfred Butte. Blocking temperatures to 680°C indicate that this magnetization is carried by hematite and site-mean ChRM directions are determined with $a_{95}<10°$ for the majority of sites. Thermal demagnetization revealed a ChRM of chert and volcanic rocks from Sentinel Mountain with blocking temperatures to 680°C, whereas alternating-field demagnetization to 40 mT successfully isolated ChRM in samples from the diabase sill. ChRM directions from four sites involved in a mesoscopic S-fold at Alfred Butte failt the fold test indicating that the ChRM is a post-folding secondary remagnetization. Tests for relative age of structural tilting and remagnetization are ambiguous with attendant uncertainties in tectonic interpretations. However, rock-magnetic and geologic constraints argue for a chemical remagnetization of these Paleozoic rocks in Late Triassic to Middle Jurassic time, possibly associated with structural juxtaposition of the Cache Creek and Stikine terranes along the Nahlin fault zone. Although certainly nonunique and speculative, the simplest tectonic interpretation of these paleomagnetic data involves post-folding and post-tilting remagnetization during the Early Jurassic in a paleolatitudinal position which agrees with predicted North American paleolatitudes for this time.