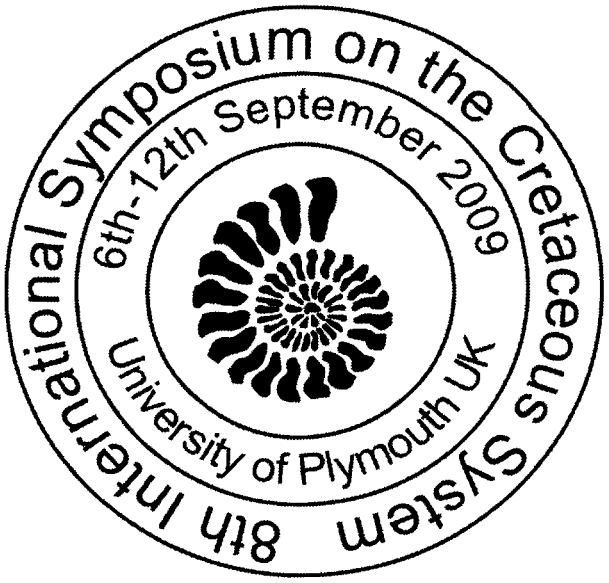

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isotope pattern. However, this shift did not occur at the transition in the Turonian to more oxygenated sedimentation in the North Atlantic, thereby leaving unanswered the question of whether changes in ocean circulation and shifting tectonic gateways were responsible for the oxygenation event. At two sites excursions to extremely radiogenic Nd-isotope values occur superimposed on the long-term patterns, which we interpret as resulting from radiogenic weathering inputs of dissolved Nd from local volcanism.

A recently published study from Demerara Rise in the North Atlantic (MacLeod et al. 2008) revealed the existence there of a large positive Nd-isotope excursion during OAE2 from extremely negative background values (~-16). We see no evidence for this excursion elsewhere, suggesting that it most likely resulted from mixing during OAE2 of locally sourced, bottom-waters with bottom-waters from the rest of the deep North Atlantic. Furthermore, our Atlantic sites do not exhibit such low background values, further supporting the idea that Demerara Rise was generally bathed by an extremely local water mass for much of the Cretaceous.

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Constraining Lower Cretaceous Wealden (southern England) palaeoenvironments and palaeohydrology from sphaerosiderite geochemistry [913]

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Sphaerosiderites are mm-scale concretions of $FeCO_3$ that predominantly form in waterlogged environments and are of potential use to palaeoenvironmental and palaeohydrological studies. We present petrographic, elemental and stable-isotopic ($\delta^{13}C$, $\delta^{18}O$) data from sphaerosiderites collected from the Lower Cretaceous Wealden sediments (Fairlight Clay facies) of southern England. The elemental data demonstrate that the Wealden sphaerosiderites are composed of very pure $FeCO_3$, with only small amounts of Ca, Mg and Mn present, suggesting that the sphaerosiderites are well preserved and formed from fresh groundwater. $\delta^{13}C$ values display a relatively large range from about -5 to -30‰ (VPDB), suggesting that the sphaerosiderites formed close to, or in, zones of methanogenesis. $\delta^{18}O$ values are relatively invariant (1σ=0.83‰), with an average of -3.01‰ (VPDB). The relationship between carbon and oxygen represents a 'Meteoric Sphaerosiderite Line' (MSL) and suggests that the sphaerosiderites faithfully record palaeo-groundwater $\delta^{18}O$. We calculate an average Wealden groundwater $\delta^{18}O$ value of -4.90 ‰ (SMOW), comparable with other early Cretaceous data from similar palaeolatitudes but lower than estimated Holocene values for equivalent latitudes. This observation suggests greater rainfall at 30°N during the early Cretaceous relative to the Holocene and the long-term relative stability of palaeoclimatic conditions during the early Cretaceous at this palaeolatitude.

New biostratigraphical and paleogeographical data on Valanginian–Hauterivian boundary beds of Azerbaijan [914]

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The Lower Cretaceous of Azerbaijan part of the Great Caucasus is little-known in terms of cephalopod biostratigraphy. There were no zones recognized within the Berriasian-Hauterivian interval. Here we present preliminary data on the Valanginian-Hauterivian boundary beds exposed along the slope of Kelevudagh Mt. (Guba region), which were studied during the field works in 2004 (Zakharov *et al.*, 2006).

The Upper Valanginian (60 m) consists of fine alteration of marls and carbonate clays. The Lower Hauterivian (100 m) is composed of clays with rare marl and conglomerate beds. Ammonites are represented mainly by Mediterranean deep-water heteromorph assemblage rich in *Criosarasinella* and *Crioceratites* (*C.* gr. *heterocostatum*, *C.* cf. *coniferus*, "*Davouxiceras*" gr. *nolani*), while neocomitids are uncommon. Phylloceratids as well as *Bochianites* and *Neolissoceras* are also scattered through the Valanginian–Hauterivian succession. Olcostephanids (*Olcostephanus* cf. *densicostatus*) are extremely rare.

The assemblage could be referred to the Upper Valanginian Trinodosum Zone, marked by the occurrence of *Varlheideites* gr. *peregrinus* (bed 48), and Callidiscus Zone recognized by the co-occurrence of *Criosarasinella* and *Teschenites* cf. *flucticulus* (beds 132-176). The Valanginian–Hauterivian boundary was drawn at the base of the bed 177 by the disappearance of *Criosarasinella* which is replaced by numerous "*Davouxiceras*" gr. *nolani*. The Valanginian–Hauterivian aptychi succession (*Lamellaptychus* (*Didayilamellaptychus*) *beyrichodidayi* - *L.* (*D.*) *subseranonis* - *L.* (*D.*) *seranonis*, *L.* (*D.*) *didayi* - *L.* (*D.*) *seranonis* subsp. 1, *L.* (*D.*) *atlantica*) is very close to those of Carpathians and other Mediterranean regions (Kasumzadeh *et al.*, 2008). Surprisingly, we have found *Punctaptychus* in the Lower Hauterivian bed 186, which is uppermost known record of this genus.

The Tethyan ammonite assemblage is accompanied by Boreal bivalve *Buchia keyserlingi* assemblage in the Valanginian–Hauterivian boundary interval (bed 177). This unusual co-occurrence could appear due to the short–time migration of Buchiids from the Russian Platform Basin through Caspian Strait (Baraboshkin *et al.*, 2007). Boreal bivalves could exist only in deeper–water conditions because of the temperature control. There is no doubt that it was dependent population even a few records of same Buchiids are known from Azerbaijanian part of the Lesser Caucasus (Zakharov & Kasumzadeh, 2005), Kopet-Dagh (Tovbina, 1988) and in Georgia (Kotetishvili, 2005).

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Advances in bio- and magnetostratigraphy of the Jurassic/Cretaceous boundary beds of Svalbard [915]

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