different oil groups, but also a wide scatter within the groups. According to this figure, the oil from the western group has been generated from a source rock containing less terrestrial plant input than that of the other oils. Different diasteranes/steranes ratios indicate variations in the clay content of the source rock.

Data from potential source rocks are compared to oil data. Sterane patterns suggest that the Schöneck Formation is the main source for the accumulated molasse oils. A slight contortion of the cluster representing the molasse oil is interpreted to reflect a minor contribution from the Dynow Formation.

The correlation diagram of pristane/n-C_{17} versus phytane/n-C_{18} (CONNAN & CASSOU 1980, PETERS et al. 1999) shows a wide scatter of data from the Schöneck Formation. Nevertheless, the Schöneck Formation (or parts of it) is considered to be the main source for oil in the Austrian part of the Alpine Foreland Basin.

Pyrolysis/GC data (unpubl.) show that the middle part of the Schöneck Formation (unit B) is able to generate a S-rich oil and, therefore, is considered the main source for thiophene-rich oil from the western group.

The carbon isotope compositions of saturated and aromatic hydrocarbons show a significant decrease in $\delta^{13}C$ from the western to the eastern fields. Biodegraded oils are characterized by light carbon isotopes. This trend probably reflects the isotope heterogeneity of source rocks.

The benzocarbazole ratio (BCR) and the contents of benzocarbazoles decrease with increasing distance to the proposed hydrocarbon kitchen located below the alpine thrust front.

Conclusion: In general, the differences in the composition of oil from the Austrian part of the Alpine Foreland Basin are minor reflecting a common lower Oligocene source rock (Schöneck Fm.) and refer to homogenization during long-distance lateral migration. Nevertheless, a regional subdivision into different oil groups is suggested by biomarker data.

- The western group of oils (K, Ktg, R, MS, Stbg) is characterized by relatively low maturity (low MPI and Ts/Tm values), high hopane/moretane ratios and high C_{29}-steranes and sulphur contents as well as high $\delta^{13}C$ values of hydro-carbons. Benzocarbazoles are absent. Its main source is probably the middle part of the Schöneck Formation („unit b").
- Trattnach oils are heavier than any other studied oil (<30° API) and have been generated by a source rock with a relatively high maturity (~0.9 %Rr). Benzo-carbazoles were missing.
- Oils from the Voitsdorf field and the central group display a northward in-crease in maturity (MPI values). Differences in Ts/Tm and diasterane/sterane ratios indicate variations in the facies (e.g., shale content) of the source rock.
- The eastern oil group displays a northward increase in maturity. The saturated and aromatic hydrocarbons are characterized by low $\delta^{13}C$ values. Benzocarbazoles were present and show in content and BCR a decrease to the north.

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New insights to depositional environments of long-lived Lake Pebas (Middle/Late Miocene; Western Amazonia)

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North-western South America was shaped by a huge system of interconnected lakes and wetlands in Miocene times. This enormous inland water system is subsumed as „Lake Pebas", which affected dispersal pathways of terrestrial taxa between the Guyana shield and the northern Andes for millions of years. However, aquatic biota like molluscs and ostracods faced impressive speciation events within „Lake Pebas" and provide model cases for studying evolutionary processes linked to, e.g., ecological changes or

geographical isolation. Whereas the general development of this amazing ecosystem is well established, several fundamental questions concerning palaeogeography, depositional environments and stratigraphical correlation remain a matter of impetuous debate. Marine intercontinental pathways between the western Caribbean and the Parana Basin through Amazonia are proposed and discussed. Likewise, the frequency, timing and effects or even the existence of marine ingressions are still disputed. In the course of an Austrian-Brazilian project dealing with the evolutionary pattern of a widely occurring and biostratigraphically important ostracod lineage (Cyprideis), several outcrops around Eirunepe (Jurua region, Amazonas state, Brazil) were sedimentologically investigated to obtain basic data of the sedimentary environment. The outcrops are located along the cut banks of the Jurua (Pau D'Alho, Morada Nova, Aquidaba, Remanso) and the Tarauaca River (Torre da Lua, Barro Branco), a few kilometres east respectively south of Eirunepe. The total thickness of the Solimoes Formation, which consists of deposits of „Lake Pebas", is estimated to range in the order of several hundreds of metres in that area. However, due to restricted outcrop conditions in Amazonia surface investigations are limited to the uppermost few decametres of Neogene sediments and lateral facies architecture studies are restricted as well. Detailed facies analyses are still missing in this region, which is supposed to be located at the south-eastern margin of „Lake Pebas".

The sedimentary record of observed outcrops comprises channel-fills of different orders and origin and sediments of flood basin settings. Fine-grained abandoned channel-fills are documented as well as sandy-silty crevasse-channel and point bar deposits. Within the overbank environment successions of greenish to pale red coloured, intensively mottled paleosols with root casts occur frequently, occasionally also calcrete horizons can be found. Sandy or pelitic layers, rich in carbonaceous matter (including tree trunks) and vertebrate remains refer to swampy environments within the floodplain. Massive to poorly laminated pelites with plentiful mollusc faunas indicate the formation of shallow floodplain lakes or are associated with abandoned channel-fills. Alternations of rhythmically stratified laminated clays/silts and ripple-bedded sands partly represent fine-grained point bar sediments and crevasse-splay deposits.

In conclusion, the investigated sections document various subenvironments of a suspension-load dominated fluvial system. Based on these results, the development of an extensive, deep and stable lake can be excluded as well as any marine influx.

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Directional correlation of petrophysical anisotropy patterns with rock deformation during alpine tectonic evolution (Eastern Alps, Austria)

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Recent geodynamic investigations in the Eastern Alps and surrounding areas gave rise for large neotectonic movements, which are dated younger than 5 Ma. The main objective of the study involves petrophysical analyses of textures in Alpine rocks in order to observe changes of the regional deformation pattern. Measurements of anisotropy of magnetic susceptibility (AMS) were carried out on samples from 32 sites collected in the Eastern Alps. Samples spanning an age range from U. Permian to Mesozoic were taken along a North-South transect from Scheibbs in the North to Kapfenberg in the South, comprising Helvetic and Penninic Flysh units, most of the Northern Calcareous Alps (NCA) nappes, as well as the Greywacke zone.

Standard paleomagnetic drill cores were taken. All measurements were performed in the Petrophysics and Paleomagnetic laboratories of the University of Leoben using AGICO MFK1-Kappabridge susceptibility system and a 2-G cryogenic magnetometer. Statistical evaluation of the AMS data was perfomed using the software package AGICO ANISOFT 4.2.

AMS analysis was carried out on two to six sites per thrust sheet or nappe for a structural investigation of the relationship between magnetic fabrics and tectonic strain in the investigated area. The study focuses on the directional correlation of the AMS axes patterns. The paleostress results of PERESSON & DECKER (1997) give evidence of six tectonic events during alpine evolution which we use as reference frame for our strain correlation.

Particularly within the NCA, AMS is inapplicable on most rocks for strain analysis as they are diamagnetic and/or isotropic. Even so, some sites are anisotropic and yield oblate or prolate magnetic fabrics. The AMS data of the research area show three main characteristics of magnetic fabrics related to strain. In the northernmost and southernmost part, the AMS principal axes document a weak tectonic deformation. Within the Flysh units the dominantly oblate fabrics with a quite low bulk susceptibility yield in-situ orientations of the maximum principal axes (k_1) well aligned in a subhorizontal NE-SW direction with a separate cluster in the South. Moreover, the minimum principal axes (k_3) after bedding correction are slightly scattered around a NW- SE direction, which differs from primary sedimentary fabrics. In a previous paleomagnetic study of the same samples (PUEYO et al. 2002) both, primary and secondary remanent magnetization vectors were observed. No significant rotations were detected in the Flysh units.

In the Greywacke zone oblate magnetic fabrics are dominant. The in-situ orientation of k_1 yields two trends: (1) k_1 scattered around a N-S trending girdle normal to the bedding and k_3 clustered SW and (2) k_1 is subhorizontal and aligned in a E-W direction with k_3 clustered normal