limestones with a grey micritic-brown clayey matrix show also radiolarian-spicula packstones with sliding textures. Intercalated are micrite clast layers and sheddings of micrite and sparite clasts with foraminifera, small shells and heavy minerals. In general the whole microfacies fabric shows a lot of slidings, very fine grained turbidites and movements of the fine grained material as very slowly creepings. The unsorted and mixed breccias are mostly grain supported. There the components are pressed together and the rims show solution and clay coating. At some points the brown clayey radiolarian-spicula, micrite and sparite clast bearing matrix can be seen. The breccia layers bear mostly angular-subrounded carbonate lithoclasts (Micrites with foraminifera, shells, pellets and calcite cemented fenestral vugs, packstones with foraminifera, algae and crinoids, packstones with sparite bioclasts and shells, pelletspackstones, packstones with incrusted components and grapestone clasts, pack- to floatstones with crinoids, shells, foraminifera and sparite clasts, pelletsgrainstones with foraminifera, grainstones with pellets, crinoids and ooids). Interestingly are packstones with sparite clasts, crinoids and calpionellids. Some light green quartzose claystones, greenish marls, fine grained quartzsiltsones and quartzsiltstones with carbonate litho- and bioclasts can also be found. Single bioclasts are represented by crinoids, foraminifera, framework builders and bryozoans. These components allow to reconstruct a evolving Late Jurassic carbonate platform which was disintegrated and reworked in some parts during breccia formation. Calpionella lithoclasts with *Calpionella alpina* (Lorenz) in the breccias are the indication that the age of the breccias and the cherty limestones is fixed with a minimum age of Late Tithonian (Calpionellid zonation: Grün & Blau 1997). The siltstones and heavy minerals show a local siliciclastic input and the bioclasts represent the actual still growing carbonate producing area in Late Tithonian. So far the situation on the western part of Mount Hochreith shows a deeper part with cherty limestones and breccias of Late Tithonian and a higher part with cherty limestones of Late Kimmeridgian-Early Tithonian. Since Gawlick et al. (2009) the Hochreith Schichten are part of the Sillenkopf basin (Sillenkopf Formation: Missoni et al. 2001) in between the Plassen Carbonate Platform and the Lärchberg Platform. After deposition of the Hochreith Schichten and their overlying sequence (still in investigation) the whole sedimentary succession was affected by Late Tithonian normal faults (Gawlick et al. 2009, Missoni & Gawlick 2010). The breccias with platform carbonate components were shed into the basin between the Late Jurassic cherty limestones and the Hochreith Schichten inclusive their hanging wall slided down as a block in deeper parts of the basin. Further investigations around Mount Hochreith are needed and in process to get a clear information about the age and the distribution of the cherty radiolarian bearing limestones and about the sedimentary sequence underlying the Late Tithonian cherty limestones and the rocks in the hanging wall of the Late Kimmeridgian-Early Tithonian cherty limestones of the Hochreith Schichten.

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Component analysis, palaeogeographic and sedimentological reconstructions of the Rossfeld conglomerate at the Leube quarry (central Northern Calcareous Alps, Salzburg)

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At the Leube open pit, south of the city of Salzburg, a complete Late Jurassic-Early Cretaceous basinal succession of the central Northern Calcareous Alps (NCA) occur. Above greenish-grey, marly limestones with marl intercalations ammonite bearing greenish-grey-brown marly rocks with plant remnants and bedded, grey limestones with marl intercalations of Late Berriasian to Early Valanginian (Krische et al. 2010) occur. The overlying rocks show a brown-black-green marly-clayey matrix with angular-rounded clasts up to 1 m in diameter and represent the conglomeratic Upper Rossfeld Formation. Until today only macroscopic determination of the components is known from the Leube area (Plöchinger 1968, 1974). Nowadays the components of the mixed and unsorted polymict Rossfeld conglomerates can be determined also microscopically by microfacies analysis. The clasts can be sorted in groups of different palaeogeographic origin. Siliciclastic resediments or intraclasts are represented by fine grained, glauconitic quarzites and brownish quartzose siltstones. Additionally carbonate producing organisms like brachiopods, bryozoans, crinoids, foraminifera and stromatoporoids are sedimented as bioclasts. Also lithoclasts with a fine grained siliciclastic matrix with bioclasts and smaller carbonate lithoclasts are common. Subrounded-angular rock fragments of pure carbonate material show on the one hand material from the Late Jurassic Plassen Carbonate Platform (PCP) with lagoonal *Clypeina jurassica* (FAVRE) bearing wackestones, ooidal limestones, and lagoonal pack- to grainstones with pellets and back reef rudstones. On the other hand different material which is related to the PCP or to a younger Early Cretaceous carbonate producing area (KRISCHE & GAWLICK 2010) with calpionella limestones with *Calpionella alpina* (LORENZ), fine grained packstones with micritic clasts, lagoonal foraminifera bearing wackestones, lithoclasts with *Crescentiella morronensis* (CRESCENTI), packstones with onkoids and pelletspackstones with foraminifera are determined. The very important next group consists exotic subrounded-rounded magmatic, radiolaritic, clayey and quartz lithoclasts. The magmatites are represented by fine grained, greyish-greenish, recristallised-chertyfied serpentinites, pyroxenites and tholeitic basalts with ophitic brownish pyroxenes. The hydrothermal chertyfied deep sea clays are of spotted yellow, blood red, blackish-red and reddish colour. Rounded radiolarites are of special interest because they show Triassic (Late Triassic, Carnian, Late Ladinian/Early Carnian, Anisian/Ladinian) and Jurassic ages. This component analysis allows now with modern sedimentological and tectonical concepts for the evolution of the central NCA (GAWLICK et al. 2009) a better reconstruction of the palaeogeography in that time span. At the main sea level fall in early Late Valanginian (GRADSTEIN et al. 2004) the Upper Rossfeld Formation was shed into the Leube basin as prograding fan in a delta sequence. Fluviatil transported radiolarites and magmatites from the eroding early Middle Jurassic ophiolithe nappe stack (GAWLICK et al. 2008) are brought together with siliciclastics and carbonate bioclasts from the former coastal area. As a fact of sea level fall the PCP was brought to the erosional surface and the river system cutted deep into the former platform area. The mixed sediment load of the conglomerates was brought as mass flows along the river channel system in deeper parts and sealed the Early Valanginian basinal rocks at the Leube basin. Very important is, that the Alpine Haselgebirge do not occur in the components of the Upper Rossfeld Formation and so far no movements of the salt and gypsum in the early Late Valanginian had taken place.

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Die Chemische Zusammensetzung von Spätbronzezeitlichen Schlacken vom Schmelzplatz Mauken (Brixlegg, Tirol)

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Im Zuge der Ausgrabungen des Instituts für Archäologien der Universität Innsbruck am Schmelzplatz von Mauken wurden in den letzten Jahren eine ganze Reihe von Metallfunden und Verhüttungsprodukten geborgen, die zeitlich in die Spätbronzezeit datieren. Neben Schmelzeinrichtungen wie die Reste einer 2-fachen Ofenbatterie, einem Röstbett sowie einer Aufbereitungsanlage wurden vor allem pyrometallurgische Schlacken, Roherze und Zwischenprodukte (Röstprodukte) gefunden. Eine ausgedehnte Schlackenhalde am Fuße des Schmelzplatzes belegt die intensive Verhüttungstätigkeit.
Die Röntgenfloureszensanalysen der Schlacken zeigen eine Zusammensetzung im System SiO_2, Fe_3O_4, CaO, MgO, ZnO, Al_2O_3 und untergeordnet K_2O und P_2O_5. Die Cu (3.1-5.1 Gew.%), Sb (0.5-2.3 Gew.%), As (0.1-0.8 Gew.%), Ag (0.007-0.1 Gew.%), S (0.4-1.5 Gew.%) und Pb (0.009-0.13 Gew.%) Konzentrationen in den Schlacken sind hoch. Verglichen mit den Schlacken vom Mitterberg und aus dem Trentino ist die chemische Zusammensetzung deutlich komplexer und vergleichbar mit den Schlacken von bereits bekannten frühbronzezeitlichen Schmelzplätzen aus dem Unterinntal (Kiechlberg, Mariahilfbergl und Buchberg).
Die chemische Zusammensetzung der Schlacken weist klar auf die Verwendung der Fe-Zn Tetraedrit-Tennantit Vererzungen aus dem nahen Schwazer Dolomit bei der Verhüttung hin und zeigt, dass sowohl in der Frühbronzezeit als auch in der Spätbronzezeit die lokalen Cu-Lagerstätten von Schwaz-Brixlegg als Rohstoffquelle gedient haben.