the growth of authigenic illite defining a penetrative cleavage in some of the scarce pelitic intercalations within the Werfen sandstone succession.
While the Middle Jurassic Hallstatt Mélange forms a more or less circular frame around the Jurassic Rettenstein succession sensu stricto, the distribution of the latter itself is clearly asymmetrical: in the north there is only Plassen Formation with the occurrence of the youngest strata, whereas the oldest rocks are found in the south. This is in accordance with the N- to NW-dip of strata and the subhorizontal fault at the basis of this tectonic unit. Looking at the thermal imprint and the geometries, the situation is best explained by the assumption of a normal fault below the Hallstatt Mélange and a thrust fault at its top. Assumably, the normal fault cut through an already complicated tectonic wedge resulting form both long-distance and out-of-sequence thrusting. The prominent normal fault with some km of displacement is most likely the result of Late Cretaceous large-scale extensional faulting which has been described particularly from the central Alps (e.g. Ötztal-Stubai complex, Gurktal nappe, Graz Palaeozoic nappe complex).

Coexistence of siliceous basin and shallow-water carbonate sedimentation in the Oxfordian of the central Northern Calcareous Alps, Austria - a major step for the understanding of the early history of the Plassen Carbonate Platform

AUER, M., SUZUKI, H., GAWLICK, H.-J. & SCHLAGINTWEIT, F.

University of Leoben, Department for Applied Geosciences and Geophysics, Chair of Prospection and Applied Sedimentologie. Peter-Tunner-Str. 5, A-8700 Leoben; das_auerli@web.de, hans-juergen.gawlick@mu-leoben.at, ef.schlagintweit@t-online.de, hsuzuki2005@d1.dion.ne.jp

The Late Jurassic succession of Mount Rettenstein is unique in comparison to all other sections known in the Northern Calcareous Alps, because it provides the oldest coexistence of radiolarite basin sedimentation with contemporaneous shallow-water carbonate intercalations. An up to 3.5-metres-thick debris flow made up of shallow-water carbonate detritus with a radiolaritic matrix is overlain by thin (calcareous) radiolarite, followed by several hundreds of metres of shallow-water carbonates of the Plassen Formation. Benthic foraminifers (*Labyrinthia mirabilis* and *Alveosepta* aff. *jaccardi*) and the extremely rich and well preserved radiolarian associations from the siliceous matrix sediments (e.g. with *Williriedellum dierschei, Eucyrtidiellum unumaense pustulatum, Eucyrtidiellum unumaense unumaense, Williriedellum dierschei, Williriedellum marcucciae, Archaeodictyomitra amabilis, Archaeodictyomitra mirabilis, Dictyomitrella kamoensis, Eucyrtidiellum semifactum, Gongylothorx favosus, Gongylothorax* aff. *favosus, Stichocapsa naradaniensis, Stichocapsa robusta, Stylocapsa oblongula, Theocapsomma cordis, Tricolocapsa conexa, Unuma gorda, Zhamoidellum ovum,* and *Zhamoidellum ventricosum*) indicate a depositional age of both the debris flow and the basal Plassen Formation in the Late Oxfordian. This is as yet the first unambiguous evidence of Oxfordian shallow-water sedimentation in the Northern Calcareous Alps. This early neritic stage with the settlement of ooid bars and coral-stromatoporoid-reefs, evidenced by the debris flow resediments in siliceous basin sedimentation, is followed by the definite, rapid progradation of the actual Late Oxfordian/ Kimmeridgian Plassen Carbonate Platform (PCP) with its steep slope configuration. Assumably, this evolution was steered by a mixture of both global environmental and regional tectonic constraints.
Our investigations result in following conclusions:

1. The Mount Rettenstein Debris Flow, which underlies radiolarites of the Ruhpolding Radiolarite Group, yields direct evidence for an initial stage of Late Jurassic shallow-water carbonate platform sedimentation with the occurrence of ooid bars and coral-stromatoporoid patch reefs since approximately the Middle/Late Oxfordian boundary.
2. Progradation of the PCP over the radiolarite basin occurred at Mount Rettenstein already in the Late Oxfordian and thus earlier than at any other known location in the NCA with complete Late Jurassic stratigraphic sections.
3. At Mount Rettenstein shallow-water levels were apparently reached rapidly during platform progradation. This is indicated by the lack of transitional (hemi-)pelagic carbonates and the only very thin slope facies succession of the Plassen Formation, which is in line with a fast progradation and the formation of a steep slope.
4. Stratigraphic correlations of radiolarians and shallow-water organisms result in a slight modification of the stratigraphic range of characteristic Oxfordian radiolarian species and the biostratigraphic zones, respectively, towards younger times. The exact position of the borderline within the Late Oxfordian has to be tested.

Summarizing, Mount Rettenstein with its unique Oxfordian stratigraphic section yields an important input for the understanding of the early history of the PCP and its palaeoenvironment. Moreover, due to this uniqueness the Middle to Late Oxfordian Mount Rettenstein succession is of immense importance for palaeogeographic considerations. This, and the complex structural situation of the isolated, rootless Jurassic occurrence is beyond the scope of this stratigraphy-focussed article and will be depicted and discussed elsewhere.

Mineralisationsphasen in der Spatmagnesitlagerstätte Sunk/Hohentauern - Stmk./Ostalpen

AZIM-ZADEH, A. M.[1], EBNER, F.[2], JIANG SHAO-YONG[3] & KLÖTZLI U.[4]

[1, 2]Montanuniversität Leoben, Department Angewandte Geowissenschaften und Geophysik, A-8700 Leoben, Peter Tunnerstr. 5, [3]State Key Laboratory for Mineral Deposit Research, Department of Earth Sciences, Nanjing University, Nanjing China, [4]Universität Wien, Department für Lithosphärenforschung, A-1090 Wien, Althanstraße 14; amir.azim-zadeh@stud.unileoben.ac.at, fritz.ebner@unileoben.ac.at, shyjiang@nju.edu.cn, urs.kloetzli@univie.ac.at

Die Spatmagnesitlagerstätte Sunk/Hohentauern in der steirischen Grauwackenzone liegt in unterkarbonen karbonatischen Wirtsgesteinen mit niedriggradig kretazischer Metamorphoseprägung (EBNER et al. 2004). Sie zeigt folgende karbonatische Bildungsphasen: 1.) flachmarine fossilreiche Kalke, 2.) frühdiagenetische, fossilführende dichte Dolomite und fein gebänderte mikrokristalline Kalke/Dolomite, 3.) div. Typen von Spatmagnesit, 4.) spätigen Dolomit am Kontakt zum Spatmagnesit, 5.) spätig-dolomitische Kluftausheilungen, 6.) Kokardendolomite 7.), submikroskopische Redolomitisierungen im Magnesit, 8.) idiomorphe Dolomitkristalle („Roßzähne“) und 9.) Dolomit als Kluftbeläge. Talk in Klüften/Störungen ist dasdie hydrothermale Reaktionsprodukt eines SiO_2-reichen Fluids mit Dolomit/Magnesit.
Die geochemische Charakterisierung erfolgte durch den Gesamtgesteinschemismus (RFA, AAS), Hauptelementen, Spuren- und SEE sowie Isotopen ($\delta^{18}O$, $\delta^{13}C$, $^{87}Sr/^{86}Sr$, $^{147}Sm/^{144}Nd$) an isolierten Einzelkristallen (AAS, MC-ICP-MS) und LA-ICP-MS ($^{87}Sr/^{86}Sr$) in Spatmagnesiten. Selbst makroskopisch als Magnesit erscheinende Proben zeigen mit erhöhten CaO- und erniedrigten MgO-Gehalten oft keine ideale Magnesitzusammensetzung. Grund dafür sind submikroskopische Dolomitrelikte (2) bzw. Redolomitisierungen (7) entlang von Spaltrissen und Klüften.