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DEFINITION OF THE TAUGLBODEN FORMATION (OXFORDIAN TO TITHONIAN) IN THE TAUGLBODEN BASIN (NORTHERN CALCAREOUS ALPS)

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The type area of the Tauglboden Formation (Tauglboden Basin) is located in the Osterhorn Block north of the Trattnerg Rise (= Lower Tirolic unit – FRISCH & GAWLICK 2003).
In this basin, the lower part of the radiolarien chert (Callovian/Oxfordian, black and red radiolarite – Ruhpolding radiolarite, e.g. TRAUTH 1948, DIERSCHE 1980 – with references and new, unpublished data) is unaffected by gravitative resedimentation. The gravitative resedimentation from the Trattberg Rise started during a later phase of radiolarien chert deposition contemporaneous with the formation of the Tauglboden Basin (in the early Oxfordian – unpublished data), i.e. later than in the Lammer Basin. The early Oxfordian to early Tithonian Tauglboden Formation attains a thickness of about 500 m near the depocenter in the southern part of the asymmetric Tauglboden Basin without the overlying basin sediments of the Oberalm Formation which are part of the Tauglboden Basin. It consists of resedimented and pelagic limestones, turbidites, grain flow deposits, and slides. The Tauglboden Formation contains clasts of Late Triassic to Oxfordian age derived from the adjacent Trattberg Rise to the south (= local material, e.g. Dachstein limestone, Kössen beds, Adnet limestone, Klaus limestone, limestones of the Allgäu Formation, radiolarite). The mass flows show a south-to-north transition from proximal to distal facies (SCHLAGER & SCHLAGER 1973). Flute casts, imbrications, and slumping also indicate transport from southerly directions (SCHLAGER & SCHLAGER 1973).

Name of the Tauglboden Formation: SCHLAGER 1956.
Derivation of name: Tauglboden valley in the central Osterhorn Mountains.
History: In the type area the cherty sediments with mass-flow deposits are called Tauglboden Formation. They were originally dated by underlying (HUCKRIEDE 1971) and overlying sediments (STEIGER 1992). GAWLICK et al. (1999) date the upper parts of the Tauglboden Formation with radiolarians as early Tithonian. Dating of the underlying red radiolarite is difficult by the scarcity of radiolarians in the type area. First investigations show an early Oxfordian age of the red radiolarite (GAWLICK & SUZUKI – unpublished data) and an early Oxfordian age of the basal Tuglboden Formation (GAWLICK & SUZUKI – unpublished data).
Most outcrops of cherty sediments with mass-flow deposits in the Northern Calcareous Alps were in newer times mostly named Tauglboden Formation (e.g., DIERSCHE 1980 – with references). Also, a lot of outcrops, especially in the Salzkammergut area, of the Tauglboden Formation were mapped as Allgäu Formation (e.g. geological maps of Bad Ischl – SCHÄFFER 1982), partly with mass-flow deposits, which are mostly named „Grünanger Brekzie“ (SCHÄFFER 1982) with an age range of late Liassic to Oxfordian. Reinvestigation of outcrops show: a) in the western part of the middle sector of the Northern Calcareous Alps most outcrops of Tauglboden Formation are Strubberg Formation, partly Sillenkopf Formation , b) in the middle part of the middle sector of the Northern Calcareous Alps many outcrops of Tauglboden Formation are Strubberg Formation and c) in the eastern part of the middle sector of the Northern Calcareous Alps many outcrops of Allgäu Formation are Tauglboden Formation.
Definition: mostly gray and black cherty sediments with mass-flow deposits and parautochthonous slides derived from adjacent highs (Trattberg Rise). Mostly bedded or laminated cherty limestones, radiolarites and cherty marls, often rich in radiolarians, partly

with filaments and sponge spicula. The components of the mass-flow deposits are: Hauptdolomite, lagoonal Dachstein limestone, Kössen beds, Adnet limestones, Allgäu limestones, Klaus limestones, radiolarites, distal Strubberg beds, in the highest parts, very rarely, shallow water limestones of the late Jurassic carbonate platform. The basin fill in the central Northern Calcareous Alps contains in the whole region a more than 1000 m sedimentary sequence including slides without the overlying Oberalm Formation.

Thickness of the sedimentary sequence: about 500 m in the type region with the mass-flow deposits and the slides; without slides, only with the mass-flow deposits nearby 250 m. Base of the Tauglboden Formation: red radiolarite of early Oxfordian age – Fludergraben member, dated by radiolarians and underlying red nodular limestones with ammonites. Top of the Tauglboden Formation: Oberalm Formation (late Early Tithonian to early Cretaceous).

Type section: Kesselwand section. The type section was described by SCHLAGER (1956), SCHLAGER & SCHLAGER (1973) and GAWLICK et al. (1999). The type section begins in the Urban Graben (see HUCKRIEDE 1971) and ends at the end of the Kesselstreet (SCHLAGER & SCHLAGER 1969, 1973)

The type section is not complete in the mass-flows and slides. From facies of components and mass-flows the type area represents a middle position in the Tauglboden Basin. Proximal parts of the basin are not preserved in the type area, but can be seen in the Knerzenalm area, the area southeast Bad Ischl and in the Unken valley (for references see GAWLICK & FRISCH 2003).

Type area: Tauglboden valley east of Kuchl in the inner parts of the Osterhorn Block.

Regional distribution: The Tauglboden Basin stretches from the Unken area in the west to the area of Bad Ischl in the east (sediments were formerly mostly classified as Liassic Allgäu Formation).

Age of the Tauglboden Formation: early Oxfordian to Early Tithonian (dated by radiolarians – GAWLICK et al. 1999, GAWLICK & SUZUKI, unpublished data).

Underlying sediments: red radiolarites of the Ruhpolding Radiolarite Group, Fludergraben member, Oxfordian (red radiolarite) over black radiolarite (Callovian) or red nodular limestones of the Klaus Formation or Liassic sediments of the high Adnet Group after a sedimentary gap.

Overlying sediments: Oberalm Formation with Barmstein layers (late Early Tithonian to Berriassian – STEIGER 1992).

Differences to other formations: The differences to the other formations (Strubberg Formation, Sillenkopf Formation) with polymictic mass-flow deposits are:

a) stratigraphic range
b) components and slides
c) paleogeographic position due to basin formation.

Strubberg Formation: is older (Callovian to Oxfordian), with underlying red radiolarite of early Callovian age (Klauskogelbach Member). Components derived from the Hallstatt facies zone and adjacent shallow water areas of the Triassic carbonate platform (= Hallstatt Mélange). See chapter Strubberg Formation for details.

Sillenkopf Formation: Kimmeridgian to ?Tithonian, with underlying Strubberg Formation and underlying reddish cherty sediments (Gotzental member), components of mixed origin (Hallstatt Mélange, local materials, late Jurassic shallow water clasts).

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