Southalpine Venetian Molasse, but not from the Paratethys realm. Within the diversity of facies types two different types of mega-scale cross-stratified sandy facies are of special interest.

1. The first type is observed as individual sets at two localities in the Linz Formation. They are characterized by fine to medium gravelly coarse sand with steeply inclined (15-29°) tabular foreset laminae, which are 10-15 cm thick. The thickness of the sets amounts to a measured maximum of 21 m in a place where the base of the set was still covered! At one locality the mega-set can laterally be followed for >600 m in a direction ~ 45° oblique to the direction of foreset inclination. The latter varies within a sector of 30° at that locality.
2. Mega-sets of the second type have been met at many localities, but normaly do not exeed a thickness of ~3 m. However, nearby the city of Melk in Lower Austria a single set with a minimum thickness of 5,5 m (base not exposed) and >100 m lateral extent (end of outcrop wall) in a direction normal to the forsets could be observed. The set consists of medium-grained sand, with faint grain-size differences between the laminae. There are no countable bundle structures developed. Foreset geometry is tabular to slightly sinous, with a maximum steepness of 28°. Numerous less inclined reactivation surfaces cut through the whole sandwave body.

Interpretation of the first type of megasets is still uncertain, but the local orientation of elongate crystallin basement highs and grabens, and the orientation of the foresets approximately normal to them suggest, that the megasets formed by basinward aggradation of foreset-laminae on steep avalange-slip-faces, the first of which was pre-built by the crystallin bottom morphology. The second type of megasets developed in an open shelf setting with sandwave fields, dominated by the tidal flood current coming from the east. The discribed sandwave near Melk was situated in a narrow seaway between the main coast and a small island, due to a local basement high. This caused an acceleration of the tidal flood current and therefore the generation of extraordinary high sandwaves.

Die Spätpleistozäne und Holozäne Sedimentation der Woodfjordregion (NW-Spitzbergen)

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Im Sommer 1992 wurden während der SPE 92 Expedition in der Woodfjordregion Aufnahmen der Sedimentstukturen sowie Sedimentbeprobungen durch Kerne und Greifer durchgeführt.
Um die sedimentäre Entwicklung seit dem letzten Eiszerfall darzustellen wurden Kornverteilung, Mineralogie, Kohlenstoff, Zusammensetzung der Sandfraktion bezüglich biogenem und minerogenem Inventar sowie die Sukzession in der Vergesellschaftung von Dinoflagellatenzysten untersucht. Desweiteren wurden stabile Isotope (^{18}O, ^{13}C) an *Nonionellina labradorica*, einer benthischen Foraminifere gemessen. Aus einem Kern am Fjordausgang liegen zwei ^{14}C-Datierungen vor.
Für die Woodfjordregion ist von einer zweiphasigen Deglaziation auszugehen, die von staken isostatischen Ausgleichsbewegungen begleitet waren. Dabei wurde in einer ersten Phase der nördliche Woodfjord sowie der Liefdefjord bereits vor dem Alleröd eisfrei. Als Mechanismus ist ein Aufschwimmen mit anschließendem Eiszerfall anzunehmen. Die zweite Abschmelzphase betrifft den südlichen Woodfjord. Dabei erreichten suspensionsbeladene Schmelzwasserüberschichtungskörper die nördlichen Fjordbereiche. Dieses Ereignis ist vermutlich etwa um 11,5 ka BP abgeschlossen.
Die Isotopenverhältnisse des anschließenden Zeitbereichs von etwa 11.5 ka BP bis zum Ende des Praeboreals deuten auf eine in etwa kontinuierliche Erwärmung. Die Jüngere Dryas läßt sich dabei nicht als Zeit einer Abkühlung fassen. Erst im Boreal ist von einer Abkühlung auszugehen. Seitdem zeigen die Isotopenwerte steigende Temperaturen an. Die Vergesellschaftung der Dinoflagellatenzysten zeigt hier besonders im Alleröd und während der Jüngeren Dryas temperate Verhältnisse, die eine sehr frühe Aktivität des Golfstromsystems bis in diese Beiten verlangen. Dieser Einfluß sinkt kontinuierlichbis zum Ende des Boreals. Seit dem beginnenden Atlantikum ist von Verhältnissen auszugehen die den heutigen in etwa entsprechen.

Oligocene to recent sediment budget of the Alps: Controlling factors and evidence for orogenic events

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Quantification of post-collisional sediment volumes, derived from the Alps, enable to unravel major changes of the erosion history since Oligocene times. The method is based on the compilation of sediment volumes in all Alpine-adjacent basins, a separation of the source regions and a density correction. The mass of diffusively spread dissolved load has been estimated. Sediment recycling has also been considered. The sediment budget has been separately calculated for the Eastern Alps, and the Swiss and Western Alps, respectively. For the Eastern Alps, and evaluation of the potential error reveals that all major changes of the sediment budget, exceeding 50 % relative change, are significant on a one-sigma level.
The dominant controlling factor of the sediment production of the orogen before Pliocene times is the regional tectonic evolution, which overprints any potential influence of either regional climate change or global sea level change. During late Pliocene and especially Pleistocene times regional climate becomes a dominant factor of erosive processes.
A so far poorly documented, still ongoing uplift phase started in latest Miocene times in the Swiss and Western Alps, and affected the Eastern Alps some 2 Ma later to a limited extent. The reason for this uplift phase is not known. Underplating, accompanied by partial granulitisation of subcrustal eclogites in the Western and Central Alps represents a potential forcing mechanism. Granulitisation may, as a result of positive recoupling, be accelerated by enhanced surface erosion.
Before this young uplift phase, during the long period from middle Oligocene to late Miocene times, average sediment supply rates of the Eastern as well as the Swiss and Western Alps have only temporarily been modified (Fig. 1). These relatively short-lived events represent both positive excursions in Aquitanian (ca. 23-21 Ma) and late Burdigalian times (ca.18-16.4 Ma), and a negative excursion in early to middle Burdigalian (20.5-18 Ma) times. Until late Aquitanian times, representing the climax of the early erosion history of the Alps, tectonics of the Swiss and Western Alps have triggered changes of the erosion rates of the Alps as a whole. The increase of erosion rates until late Aquitanian times is probably due to isostatic uplift after Oligocene stacking, probably enhanced by the increasing rigidity of the European lower plate.
From early Burdigalian to late Miocene times, lateral extrusion of the Eastern Alps has triggered changes of the erosion rates in the whole Alps, despite of the minor relative importance of eroded volumes. The extensional phase in the Swiss and Eastern Alps is interrupted by a short period of updoming in late Burdigalian times, representing a time of massive tectonic and paleogeographic reorganization.