calculation of gas uptake. The source and sink terms in equations of continuity represent either transfer of a chemical species from one microphysical category to another (e. g. transfer of cloud ice sulfate to cloud water sulfate by melting, transfer of cloud water sulfate to rainwater sulfate by autoconversion etc.) or a chemical reaction (e. g. oxidation of cloud water SO_2 by H_2O_2 and O_3 to cloud water sulfate). Comprised microphysical processes in source/sink terms are: autoconversion, accretion, Bergeron processes, freezing, depositional growth, melting, sublimation and evaporation. It is assumed that initial concentrations of chemical fields fall off exponentially, from the given values of mixing ratios at the lowest model level. Two environments were simulated: continental background and moderately polluted. The cloud model is initiated by a single sounding giving the values of temperature, humidity, pressure, wind direction and velocity. The initial meteorological fields are horizontally homogeneous. The experiments were made with the real orography.

The resulting cloud model coupled with chemistry module provides a powerful diagnostic and prognostic tool for studying the relative importance of physical and chemical processes in determining the distributions of sulfate and nitrate species in convective clouds and precipitation, as well as the transport of trace chemical species within convective systems. A special emphasis was dedicated on sulfate redistribution in different water categories during the convective cloud life. Vertical profiles of sulfate following the cumulonimbus trajectory can give us a lot of information about sulfate redistribution also. The maximum values of SO_4^{2-} in the cloud water is located in the lower part of the cloud, at the place of maximum vertical wind or just a slightly behind. The same situation is with maximum values of SO_4^{2-} in cloud ice: maximum of SO_4^{2-} correspond to maximum of vertical wind.

Cretaceous lithostratigraphy in the CBGA region and some remarks to the correlation of syntectonic sedimentary successions

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The lithostratigraphy of the Cretaceous of the CBGA region is characterized by a large variety of lithostratigraphic units within individual member countries. This fact is due to the large variety of facies, especially as a consequence of Alpine orogeny, and the high number of different tectonic zones and thrust units. However, some facies types and units can be correlated over several countries, i.e. grey to whitish pelagic limestones of the Lower Cretaceous, which constitute a widespread facies within the Tethys realm, largely controlled by the paleoceanographic setting and evolutionary events.

Within pelagic limestones of the Lower Cretaceous ("Neocomian"), clastic admixtures may be present, that indicate synsedimentary tectonism related to early phases of Alpine orogeny ("eo-Alpine" phases). Clastic rocks such as huge breccia bodies and sandstones were found in a belt from Austria (Rossfeld Formation, Northern Calcareous Alps) to Slovakia (Nozdrovice Breccia, Manin Unit; Strážovce Formation, Križna Nappe) and Hungary (Lábatlan Sandstone Formation, Transdanubian Range). Most of these formations also contain chrome spinels as heavy minerals, which point to a common geotectonic position and source area type.

Mid-Cretaceous formations from the Eastern Alps and the Carpathians may be also correlated due to a common plate tectonic evolution. The Losenstein Formation (Albian-Lower Cenomanian) of the Eastern Alps marks a distinct phase of compression and thrust wedge basin evolution in the Eastern Alps. Similar deep-water conglomerates and sandstones can be found in the Western Carpathians of Slovakia, the Poruba Formation (Tatricum and Križna Nappe). Again, also the petrography of conglomerates and sandstones point to a common source area and a common geotectonic position at the northern margin of the Austroalpine microplate. Similarities to the Pieniny Klippen Belt may be discussed in the future.

A special case is formed by the Gosau Group and equivalent Gosau-type sediments within the Alps-Carpathians-Balcanides area. The term "Gosauschichten" or Gosau-type sediments was used for a number of (transgressive) Upper Cretaceous successions within an area from the Eastern Alps of Austria up to the Carpathians of Romania. At its type locality in the Northern Calcareous Alps of Austria, the Gosau Group is defined by a basal angular unconformity above Permian to Lower Cretaceous rocks, thus marking a new sedimentary cycle starting in Late Turonian times. The Lower Gosau Subgroup (Upper Turonian - Campanian) consists of terrestrial deposits at the base, including bauxites, and passes gradationally into shallow-marine successions with abundant fossils like rudists. The Upper Gosau Subgroup comprises deep-water deposits such as marls and a broad variety of deep-water clastics up to the Eocene. Similar deposits are known from Slovakia (Brezová Group) and Hungary (Transdanubian Range). Largely similar transgressive successions with slightly different stratigraphic ages are also reported from Romania (Apuseni Mountains) and Serbia (e.g., Mokra Gora, Western Serbia). Although geotectonic positions and basins may have been different, this points to a common evolution of the area after a mid-Cretaceous tectonism followed by renewed marine transgressions and a deepening of the depositional areas.

Syn-rift and synorogenic olistostromes and their role in interpretation of tectonic evolution of the Neoproterozoic Lufilian orogen as background for comparative studies

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The Lufilian belt is a part of the Neoproterozoic-Lower Palaeozoic Pan-African orogenic system of southern and central Africa. Its sedimentary sequence of the Katanga Supergroup (880-500 Ma) is composed of five groups: Roan and Nguba that represent rifting stages and Kundelungu, Fungurume, and Biano, which reflect evolution of the synorogenic foreland region. The occurrences of olistostromes, traditionally called the Katangan "megabreccias", are a prominent feature of the Lufilian belt architecture. Some olistostrome bodies reach thickness of 2000 m and contain huge blocks of Katangan rocks, some of which host the famous copper-cobalt orebodies of the Dem. Rep. of Congo sector of the Central African Copperbelt. They were previously considered as tectonic mélanges ("friction breccias") marking regional decollement zones related to thrusting during the Pan-African orogenesis. However, these fragmental rocks were recently shown to be of sedimentary origin and to form two extensive olistostrome bodies, which shed new light on the stratigraphy and tectonic evolution of the Lufilian belt. Borehole cores available in this copper mining region reveal fine details of their stratigraphic, sedimentological and structural relations.

The main lines of evidence for the olistostrome genesis are following: (1) lack of pervasive shearing that would point to tectonic fragmentation; (2) textures and structures diagnostic for subaqueous sediment gravity flows ranging from debris flows to turbidites; (3) roundness and provenance of clasts, and lateral facies gradients implying erosion, abrasion and unroofing of the Katangan source rocks elevated in the source areas; (4) lower boundaries of fragmental bodies are not tectonic but stratigraphic; (5) injections of unconsolidated conglomeratic matrix filling open joints in megablocks and fragmented slide sheets, which represent olistoliths and olistoplaques.

The older olistostrome unit is a disorganised to locally organised syn rift complex with olistoliths reaching five metres across. The clasts were derived from the uplifted rift margin and redeposition resulted from mass-wasting (rockfalls producing sedimentary breccias), sliding of solitary blocks, and pebbly to cobbly debris flows, some of which evolve to turbidites. The underlying strata are deformed by slump folds, and the succeeding lowest part of the olistostrome contains slump-generated debris flows with fragments of the dismembered slump beds. This olistostrome succession consists of three complexes typified by matrix-supported debris-flow conglomerates with Roan clasts. Some of the conglomerate beds pass upwards to normally graded turbidite layers and are accompanied by solitary slump beds. The three conglomeratic assemblages are separated by two intervals of sedimentary breccia