

Lines 276-279: 'First, during weathering Ca in the top part is transferred downward and there precipitate along fractures which were formed by physical weathering and/or rock relaxation. Second, during burial process Ca may be transferred by fluids from underlying or overlying formations, depending on hydraulic conditions.'

This should be rewritten. If the content refers to a scenario that you consider to have taken place it should be in the past tense; if it is a description of a general scenario present tense is fine, but it should be written with the underlying uncertainties in mind (e.g., 'may be transferred downward').

Line 353: 'in both, basaltic'

Delete comma.

Line 398: 'influence for'

Should be 'influence on' or 'implications for'

Line 411: 'ESEM imaging proofed kaolinite in two morphologies'

Replace 'proofed'. 'indicated'?

Please use xxx°C (not xxx °C; i.e., with a space) throughout the manuscript.

Please fix the grammatical issues highlighted in red in the following sentences:

Line 419-421: 'the Ca and Na within the I/S in this part, **may from** the original smectite, and in this part, the Ca and Na may not further depleted during the overprint, and the **influence to** the CIA and PIA values for evaluating the weathering intensity is negligible. The remaining secondary mineral**s** in the lower part (14.3-19.3 m) is illite''

Lines 425-426: 'Therefore, the CIA and PIA values [**presented?**] here for weathering intensity evaluation **is** acceptable'

Lines 426-427: 'Similar **with** the basaltic andesite, in the gabbroic diorite part, the **predominated first secondary** minerals formed by weathering was smectite according to the A-CN-K diagram'

Lines 249-431: 'And in the topmost part, this influence should be **maximal**, with the **decrease content** of the secondary minerals towards the lower part, this influence will also decrease.'

Lines 490-491: 'which indicate a temperature **nearby** 200 °C'

Lines 491-492: 'And also, emplacement of a calcite vein is coupled with recrystallization of quartz by low-temperature migration recrystallization **is also found** (Fig. 2C), which **indicate** a temperature of around 300°C'.

Line 494-495: 'homogenization temperatures from fluid inclusions in hydrothermal veins **with** up to ca. 290 °C'

Line 496: 'Subsidence ceased in the uppermost Jurassic according to **conserved** sedimentary sequences in southern Germany'

Line 500: 'A further pulse of exhumation is **proofed** for the middle to late Pleistocene'