track zircon ages than that from the Sambagawa and Shimanto belts. Cooling ages through
the apatite closure temperature are older in north than in south. This explains that
exhumation would not last forever and stopped at some point. The exhumation would be
causd by the events such as rapid subduction of the Shikoku Basin, or would be explained
by the general underplating mechanism which supply material at the bottom of accretionary
wedge and force the deformation and uplift of the prism.

Key words: southwest Japan, accretionary complex, exhumation, fission track

A case of denudation process in a cut slope of the Tertiary deposits in Japan

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The basic purpose of this paper is elucidating control factors and mechanism of
weathering and denudation of the Kobe Group (the Tertiary deposit) at a cut slope site in
Hisaihara, Kobe City, Japan. There are many rills on the surface of this slope at the site,
which resembles ‘Cappadocia’ in Turkey. Cutting hills in this area of the Kobe Group
results in mass wasting, which usually affects the paddy fields and makes them inappropriate
for cultivation. Therefore, it is important to understand the mechanism of weathering and
denudation in relation with mass wasting and its prevention. The Kobe Group is distributed
in the northern part of Kobe City (Sanda basin), which consists of sedimentary rocks such as
conglomerate, sandstone, mudstone, and tuff making a series of sediments. It makes
monoclinic slope of about 5° westward. The angle of stratification is more or less equal to
the angle of internal friction for the material involved in the slip layer, which in most cases
is decomposed tuff. The stratigraphy of the cut slope area is characterized by the deposition
of conglomerate, sandstone, coarse-grained tuff, and fine-grained tuff from bottom to top. The
authors look into main causal factors of denudation such as temperature, pH, and electrical
conductivity (EC) taking into consideration the geomorphological changes. The temperature
measurement points were set at a depth of 10 cm in a square grid of 1 m. The pH and EC
were also measured at each cross point of grid on the surface. The distribution of
temperature of the soil indicates that the characteristic contrast is affected by the geological
structure. The pH values of the soils on the slope surface mostly indicate alkaline condition
at about 9.0 at each measurement point. High value of EC is found for the soil near the
bottom layer of fine-grained tuff, which is considered to be a factor favoring soil crust. The
distributions of temperature of soil, pH, and EC play an important role in the mechanism of
mass wasting. Mainly, the feature of EC is related with the ease to increase water content of
soil. The area of high water content makes the soil have greater weight. Upon investigating
further, it is expected to understand that the distribution of high EC makes the slope portion
unstable.

Key words: Tertiary deposits, denudation, electrical conductivity, pH, temperature