

45**THE NATURE AND OCCURRENCE OF SUPERFICIAL DEPOSITS IN ODO-OGUN, ISEYIN, NIGERIA AND PADANG TERAP, KUALA NERANG MALAYSIA**

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Subsurface stone-lines, lateritic outcrops and concretionary ironstones are examples of landforms normally considered as forming in the humid tropical and temperate climate regions today. The paper examines the nature and occurrence of superficial deposits in the upper layer of saprolite in the humid tropical climate of West Africa (Nigeria) and South East Asia (Malaysia). Attention is focused on areas of low relief, which are more variable in slope gradient than the flat plains or high relief areas. Several factors affect the formation of these landforms. In the Odo-Ogun, Iseyin (Nigeria) and Padang Terap, Kuala Nerang (Malaysia), some of the more important factors appear to be the nature and rate of mass movement, pedoturbation, slope and eluviation of boulders, stone and pebbles into the sub horizon of the soil.

Key words: Odo-Ogun, Padang Terap, superficial deposits, slope, pedoturbation, eluviation, lateritic outcrops, concretionary ironstone and saprolite granite,

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Pedogeochemical Studies and Palaeoenvironmental Implications in S-Kamchatka
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Pedogeochemical studies of glacial and glaciofluvial deposits of potentially different age were done in the mountain valleys and at the west coast of the S-Kamchatka peninsula, Russia, with regard to past environmental changes. The soils are covered by multiple tephra layers and have been influenced by permafrost. The extent of soil development was inferred from weathering indices and iron fractions for relative dating. Tephrochronology was used for minimum age determination of the buried soils. The results show slight differences between the two different-age terminal moraines in the valleys. However, they are clearly different by their surface morphology. It suggests that they are separated by an interstadial rather than an interglacial. According to the weathering extent and the age of the oldest tephra overlying the two glacial phases (8 ka) both are of Late Pleistocene age. The deposits at the west coast differ from those of the central valleys by pronounced ice wedges. Intercalated between the coastal moraine soils and covering lake sediments a tephra could be identified from an eruption of the Opala volcano about 40 ka ago. This tephra was not found at the two valley sites, indicating Middle Pleistocene glaciation, which advanced to the modern sea coast. *Key words: palaeoenvironment, pedogeochemistry, Pleistocene glaciation, tephra*

Pedogeomorphological Interactions in a Closed Depression at the Interfluve of the Upper Fortaleza River Basin: Bananal, São Paulo, Brazil.

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Closed depressions occur in different geological conditions, as observed by other authors in SE Brazil. In the Bananal river basin Coelho-Netto and collaborators describe such depressions in the interfluve zones, being hypothetically seen as *proto-topographic hollows* which may have stabilized before evolving the so-called "structural-hollows". This study focus an asymmetric closed depression on Precambrian garnet-biotite-gneiss rocks in the Upper Fortaleza river sub-basin. A 3m deep topo-sequence shows the antecedent reddish, homogeneous and clay-rich oxisols in the uppermost portion, changing gradually to pseudo-gley soil (mottled with yellow-reddish/ iron-rich, and black/manganese-rich bodies). The geometry of soil horizons and topography are correspondent and no slope deposits were found. Eletro-resistivity data show the soil-rock boundary at 50m deep and an asymmetric slip-surface fits well with the surface topography, suggesting interactions between differential weathering and pedogeomorphological processes.

Key words: interfluve, closed depression, oxisols, pseudo-gley toposequence

Soil Erosion after Forest Clearing in the Main Island of Okinawa
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Coral reefs off the main island of Okinawa have been damaged by an inflow of reddish soils. Conversion of hillslopes into farmlands and housing sites and logging have been reported to be the causes of soil erosion and outflow of reddish soil. To clarify the change of erosion rates after forest clearing and the difference of erosion rates and erosion processes in each soil type, the authors investigated the rain splash erosion and sheet erosion *in situ* and in laboratory experiments. The transportation of soils in a cutover basin decreases sharply when the understory vegetation covers most of the surface, about two years after the forest clearing. The erosion processes are different in each soil type. The red soils would be eroded only by rain splash because the A horizons have a small bulk density and high permeability. The yellow soils would be moderately eroded mainly by rain splash and partially by overland flow. The surface gleyed red and yellow soils would be severely eroded by combined rain splash and overland flow. The reason is that these soils have a large bulk density and low permeability.

Key words: soil erosion, forest clearing, rain splash erosion, sheet erosion

A Pedogeomorphic Model for Mountainous Terrain, Northern Rockies, USAC.G. OLSON^{1*}, G. HOFFMANN², B. GARDNER², and P.N. PETERSEN³USDA-NRCS, ¹Lincoln NE, ²Orofino, ID and ³Boise, IDcarolyn.olson@nssc.nrcs.usda.gov

A soil-geomorphic model was developed for steep, mountainous terrain having V-shaped valleys in the Clearwater Mountains, Northern Rocky Mountains, Idaho. Depth of weathering and the degree and kind of soil development were examined on several landform positions. Bedrock is predominantly high-grade metamorphosed schist mantled by volcanic glass-enriched loess. The surrounding landscape consists of a series of ridges with an occasional rounded summit along a ridge. Secondary ridges extend nearly perpendicularly to the main divides and slope steeply toward the streams in the valley bottom. Their longitudinal profiles are convex to linear-convex. Structural benches, blanketed with 1-2 m of loess, may be present at any point on the lateral ridges. On summits and slopes of <30%, loess is \leq 50 cm thick. On slopes >30%, loess is thinner and admixed with underlying material, primarily by colluvial processes. Soils developed in the glass-enriched loess and underlying residual and colluvial metamorphic material are moderately deep to deep even on the steeper slopes. Clay films and sheets are evident at depths >2 m in both residuum and colluvium. Clay movement to such depths may be due in part to the number of joints and fractures in easily weatherable schist and residuum. More significantly, it demonstrates that pedogenic development in steep, mountainous terrain is greater than what might be anticipated.

Key words: pedogeomorphic model, steep terrain, deep weathering, schist, Idaho

Landscape evolution and Pedogenesis in Southernmost South America, Argentina

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Soil-landscape relationships of southern Patagonia are studied. The area studied is located in southern Argentina between 48-52°S (200000 Km²). Since Pliocene, Patagonia was affected by glaciations. In Early Pleistocene most extensive glaciation took place. Last Glaciation ice retreat ended 14-12 Ka. Several small ice readvances took place in Late Pleistocene and Holocene, with Late Glacial and different Neoglacial stages. Present landscape is formed by the combination of large glacial features (mainly extensive terminal moraines fields) and large structural, fluvial and glacifluvial terraces related to major west-east river valleys. Lavic structural plains (due to strong Neogene volcanic activity) and pediments & bajadas related to Andean Cordillera uplifts, were also widely distributed landscape features. Two different sectors could be distinguished within. Western area, including Patagonic Andean Cordillera and piedmont characterized by strong landscape variations, udic-xeric regime and Nothofagus woodlands and an Eastern area with aridic regime, grassland-shrub steppe and large flat structural plain landscape. Accordingly with different landscape-relief features and parent materials, both areas have different soils associations. Western area is characterized by an Andisol-Mollisol-Entisol sequence meanwhile Eastern by an Ardisol-Entisol trends. Soils features and pedogenic processes are studied in relation with soil forming factors trends, particularly relief and parent material. Study of pedogenic features contribute to better understanding of landscape evolution in Holocene time.

Key words: Southern Patagonia, landscape evolution, soils, soil forming factors