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NEOPLEISTOCENE STRATIGRAPHY IN THE KOLA-KARELIAN REGION (N-W RUSSIA): KEY-SITES.

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In the context of the DATESTRA Project (http://datestra-seqs.strikingly.com/), the review of available data includes the key-sections with Neopleistocene (middle and upper Pleistocene in the Europe) stratigraphic units that were identified according lithological, paleontological (pollen, diatoms, foraminifera, and others) features in the Kola-Karelia region. Deposits of stratigraphic subdivisions from Kola are geochronometrically (C^{14}, U-Tr, ESR, or OSL) aged; single sediment successions are C^{14} aged in Karelia. Descriptions of stratigraphic date for the applicable key-points, their location, main features, and references included, will be presented in the poster report.

Consisted of Prionezhsky, Pai, Uriya, Svyr, and Oka horizons (Zastrozhnov, 2014), **lower Neopleistocene** (pre-Holsteinian middle Pleistocene in NW Europe) glacial and interglacial deposits have been found by drilling in southern Karelia. Their relative age has been approximately derived from their positions in the sediment succession. Lacustrine and fluvial clayey sediments of the interglacial Pay horizon (c. MIS 15-17) and glacial boulder-loam of the Prionezhsky and Svyr horizons (c. MIS 18 and 14, correspondently) are probably present in the boreholes at the Pay Village in central part of the Onega-Ladoga Isthmus (ca. 61.2023 N, 34.4495 E) (Akromovskiy et al., 2000, Bogdanov et al., 2013). Glacial diamicton of the Oka Horizons (MIS 12) occur in southern Karelia between the Svir (c. MIS 13) and Likhvin (MIS 11) interglacial units in the sediment succession known from borehole near Orzega Village, western Coast of Onega Lake (c. 61.6459 N, 34.4858 E); glacial gravel-bolder diamicton with 18 m thickness are identified here under Likhvin interglacial deposits in the borehole situated near Matrosy Village (c. 61.7628 N; 33.7973 E) (Agranova, Gaigerova, 1973; Akromovskiy et al., 2000).

Middle Neopleistocene includes the interglacial Likhvin (MIS 11), Chekalin (MIS 9), and Gorky (MIS 7) horizons and the glacial Kaluga (MIS 10), Vologda (MIS 8), and Mockow (MIS 6) horizons, which correlate to the middle Pleistocene Holstein and Saale in NW Europe (Zastrozhnov, 2014). Key-sites Matrosy (c. 61.76280 N; 33.79726 E) and Orzega (c. 61.6459 N; 34.4858 E) on the Onega-Ladoga Isthmus in southern Karelia proved the sediment succession included interglacial marine and lacustrine clay and degraded paleosoil with pollen spectra of Likhvin (Holstein in NW Europe) type. Indicated Pinus-Picea-Betula forest with broad-leaved trees admixture, coniferous and birch pollen dominate in spore-pollen spectra, scarce pollen of *Carpinus, Quercus, Ulmus, Tillia* and tertiary pollen of *Juglans* sp., *Liquidambar*, *Tsuga* are also present (Agranova, Gaigerova, 1973; Apukhtin, Ekman, 1967; Ekman, 1987). Any sediments of glacial Kalyga horizon (MIS 10) are not known in Kola-Karelian region. Marine deposits correlated to the Chekalin horizon (MIS 9) were identified according paleontological (spore-pollen, diatoms, foraminifers, mollusc) data and geochronometrically aged in southern Kola Peninsula on the right bank of the Lower Varzuga River (Korsakova et al., in press). The basal part of the Varzuga key-section (66.3961 N; 36.6497 E) is represented by superposition of consolidated clay, loam, sandy loam with subfossil mollusc shells ESR dated between 319 and 316 ka B.P. Recurring vegetative assemblages are characterized by increasing quantity of *Betula* sect. *Albae* with occurrence of mesophilous and thermophilous components (*Alnus, Quercus, Tilia, Ulmus, Carpinus, Corylus, Osmunda, Nuphar, Nymphaea*) indicate here several middle Neopleistocene warm climatic events. The middle Neopleistocene Vologda (MIS 8) and Gorky (MIS 7) horizons are probably presented in the Varzuga key-section too (Korsakova et al., in press); the key-site Kolodozero (61.78430 N; 37.73372 E) provide the spore-pollen evidence of these both units in the S-E Karelia (Agranova et al., 1977). Till and melt-water deposits of the Moscow (MIS 6) horizon are known in numerous outcrops from Kola and southern Karelia. The key-sections are situated in the head of the Svyatoi Nos Bay of the Barents Sea (N 68.0328; E 39.8736), in the valleys of the Lower Chapoma (66.1131 N; 38.8442 E), Ponoi (67.0781 N; 41.1313 E), and Malaya Kachkovka (ca. 67.4 N; 40.9 E) Rivers, in Petrozavodsk area on the Onega Lake terraces (61.8122 N; 34.3292 E and 61.8103 N; 34.3342 E) (Gudina, Yevzerov, 1973; Koprsakova, 2009; Korsakova et al., 2011, 2016; Devyatova, 1972; Ikonen, Ekman, 2001).

Upper Neopleistocene incorporates Mikulino (MIS 5), Podpopozhie (MIS 4), Leningrad (MIS 3) and Ostashkovo (MIS 2) horizons (Zastrozhnov, 2014). Generally represented by marine and brackish-water sediments, Mikulino (MIS 5) horizon includes the both Ponoi and Strelna Beds identified in the Kola upper Neopleistocene Stratigraphy. The ESR/OSL-age of the Ponoi Beds and Strelna one ranges from approximately 120-130 to 100-105 ka (MIS 5e-d) and 100-105 to 70-80 ka (MIS 5c-a), correspondingly (Korsakova et al., 2004; Korsakova, 2009). The key-sections are situated in the valleys of the Strelna (66.0983 N; 38.5269 E), Chapoma 66.1131(N; 38.8442 E), Malaya Kachkovka (c. 67.4 N; 40.9 E), and Ponoi 67.0781(N; 41.1313 E) Rivers (Gudina, Yevzerov, 1973; Korsakova, 2009; Korsakova et al., 2016). Palynological proxies and diatoms from Ponoi Beds indicate more favorable environments as compared with the modern one; indicated from the Strelna Beds, environments are close to the modern one or colder. Three key-sections in the Petrozavodsk area (c. 61.8122 N; 34.3292 E; c. 61.8103 N; 34.3342 E; c. 61.7497 N; 34.4254 E) in southern Karelia proved the sediment succession included interglacial marine and lacustrine sand, silty clay, silt, and clay with Mikulino spore-pollen spectra (Ikonen, Ekman, 2001; Devyatova, 1972). Glacial deposits of the Podporozhie (MIS 4) horizon are known from the central and western Kola region and from southern Karelia. Two natural exposures with the Podporozhie horizon till, melt-water and glaciomarine sediments have been found on the Terskii Coast of the White Sea in the outcrops from Chavanga (66.1508 N; 37.7819 E) and Kamenka (66.0844 N; 38.2861 E) River valleys, and are known from borehole in the Lovozero Tundra Mountains (c. 67.8125 N; 34.9424 E) (Korsakova, 2009; Grave et al., 1964). Glacial diamicton and melt-water sand were identified in the key-sections Petrozavodsk (61.7983 N; E 34.3694) and Kukovka (61.7692 N; 34.3800 E) in southern Karelia. These deposits are overlaid here by interstadial Leningrad (MIS 3) lacustrine sand or peat. Interstadial Leningrad horizon sediment from both mentioned sections and from the key-section Drevlyanka (c. 61.75 N; 34.33 E) have been yielded ages 43900±900, 41800±950, 38700±850, 31750±500 ^{14}C yr. BP (Ekman, 1982; Ekman, Liyva, 1980). In the Kola region, the Kamenka key-section (66.0844 N; 38.2861 E) provides a record of Valdaian (middle and late Weichselian) glacial and marine deposition. ESR-dated to about 59 ka and 52 ka, marine loam and sand correlate here to the Leningrad horizon. In addition, interstadial peats and lacustrine sands are known from the Kovdor open pit (c. 67.554 N; 30.455 E) in the western Kola, and from boreholes in the Lovozero Mnts (c. 67.8125 N; 34.9424 E) (Korsakova, 2009; Yevzerov, Koshechkin, 1980; Grave et al., 1964). Tills and melt-water sediments of glacial Ostashkov (MIS 2) horizon have a landforming value in the Kola-Karelian region. Substantiated by paleontological data and ^{14}C aged, key-sections with Ostashkovian sediment succession are Sortavala (Kheljulia) (c. 61.7500 N; 30.7167 E) on the northern Ladoga coast (Bakhmutov, Zagniy, 1986), Pudozh (c. 61.8056 N; 36.4667 E) and Tambichozero (61.9350 N; 37.9022 E) in southeastern Karelia (Wohlfarth et al., 1999, 2002).

SOIL AND LANDSCAPE DEVELOPMENT IN AN ARCHEOLOGICAL SETTLEMENT AREA OF FRANCONIA (GERMANY)

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Along the Upper Triassic (Keuper)-cuesta escarpment of the Steigerwald several hill-top settlements can be found. One of those settlements is situated on the Bullenheimer Berg plateau, an escarpment outlier located 13 km south-east of the so-called Main-Triangle. For several years archeological excavations have been executed here, which are accompanied by soil geographical investigations.

The overall objective is to reconstruct, to what extent former settlers have affected or rather modified soils and landscape. Therefore, a small-scale survey of soils and sediments was conducted. Based on detailed soil mapping, characteristic soil horizons were selected and locally analysed by laboratory methods. Moreover, samples were taken from archeological excavation sites and further analysed in order to obtain pedological, sedimentological, and mineralogical data.

Our poster presents the soil and landscape development of the Bullenheimer Berg plateau, based on the results of the mentioned investigations. Prior to the field survey it was unclear, which soils could be found and whether an undisturbed Holocene soil was preserved on the plateau. Since then, the archeological excavations and soil mapping enabled insights into anthropogenic influenced soils and related sediments. Furthermore, mineralogical analysis should clarify, whether the clayey-silty parent material is part of the stratum Hassberge-Formation or part of the underlying stratum Steigerwald-Formation, respectively whether the clayey material is weathered material. Overall, ten profiles were analysed, four of them related to our new soil map and six accompanying the archeological excavations. Apart from the bulk analyses (e.g. grain size, pH-value, carbonate content), clay and bulk minerals of three profiles were analysed using the X-ray diffractometer.

As a result, soil mapping could not prove undisturbed Holocene soils on the plateau. The whole plateau is covered by Colluvisols consisting of several horizons (according to the German German Soil classification). Charcoal as well as ceramics were found in all horizons. The sedimentological analyses showed a very similar grain size distribution of the various colluvial horizons. These facts strongly indicate an intense reworking of soils and sediment during various phases of intense settlement and use of the plateau area. With the presence of buried A-horizons it is clear that during the past 3000 years at least phases of initial soil formation took place, which were later stopped by accumulation of colluvial sediments. Based on the clay- and bulk mineral analyses, the clayey parent material could not clearly be assigned to a geological strata, since the claystones of both possible strata are nearly identical in their composition. However, it is clear that there is no