[EJ] Evening Poster | S (Solid Earth Sciences) | S-CG Complex & General

[S-CG59]Structure and evolution of Japanese islands - Formation of island arc systems and earthquake cycles

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Subduction processes such as accretion, back-arc-spreading, and arc-arc collisions have shaped the Japanese island arc. Recent advances in seismic imaging, both passive and controlled source, have produced new images of the crust-mantle structure under Japan and surrounding regions. Through the influence of pre-existing faults and rheological structures, these crust and mantle structures are exerting strong control on active tectonic processes like seismic activity and crustal deformation in the overriding plate. We seek contributions that document and/or model the deformation of the Japanese islands over a variety of time scales from the earthquake cycle to the tectonic evolution of the Japanese island arc, and from a range of research fields including seismology, geology, geochemistry, tectonic geomorphology, and geodynamics. Multidisciplinary studies are encouraged. We also welcome contributions in numerical or analogue geodynamical modeling that explore deformation processes.

[SCG59-P04]The Lower Cretaceous groups in the Khabarovsk Krai, Far East Russia: Detrital-zircon-age spectra and tectonics

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Introduction Lower Cretaceous sedimentary complexes have been arranged in NNE-trending rows from Far East Russia to Hokkaido. They are, from west to east, the Amur Complex (C.), Kiselevka–Manoma C., Zhuavlevka C., and the Sorachi–Lower Yezo groups. Among them, the former two are considered to be an off-scraped and underplated accretionary complex, respectively, along the same subduction zone[7)]. The latter two are supposed to have been deposited to the south and have been carried to the north along the East Asian continental margin[2), 3), 5)]. In this presentation, we aim to show the detrital-zircon-age spectra of the Amur and Zhuravlevka complexes, constrain (1) the age of sedimentation and (2) the provenance, and (3) reconstruct the post-sedimentary rearrangement process of these complexes.

Materials The Amur and Zhuravlevka Cs. consist mainly of turbidite with rare occurrences of bivalve fossils. The Amur C. partly contains pelagic–hemi-pelagic siliceous rocks that have downward-younging age-polarity[7)]. The Amur C. occurs on both sides of the Central Sikhote-Alin Fault (CSF), whereas the Zhuravlevka C. occurs to the east of CSF. We collected six sandstone samples from the

Amur C. and seven sandstone samples from the Zhuravlevka C. along the Khabarovsk–Lidoga–Vanino Road. The two complexes in the study area strike NNE to NE and dip steeply westward. Here we make a very short description of collected samples in apparent ascending order.

Amur C.
Am1 [49°24′43.99″N, 136°42′39.57″E]: Quartzose arenite of the Gornoprotoka Formation.
Am2 [48°43′45.43″N, 135°48′27.76″E], **Am5** [48°39′47.12″N, 135°29′59.98″E], and **Am6** [48°39′57.41″N, 135°29′54.77″E]: Quartzose arenite from the interbedded sandstone and mudstone of the Pivan Formation.
Am3 [48°28′30.15″N, 135°27′50.92″E] and **Am4** [48°39′43.18″N, 135°30′14.83″E]: Feldspathic arenite from the interbedded sandstone and mudstone of the Pivan Formation.

Zhuravlevka C.
Zh1 [49°12′2.9″N, 139°6′49.5″E] and **Zh2** [49°11′0.7″N, 139°4′19.9″E]: Feldspathic arenite of the Primanka Formation.
Zh4 [49°9′30.2″N, 138°54′35.9″E] and **Zh5** [49°11′42.9″N, 138°52′59.4″E]: Feldspathic arenite from the sandstone-rich alternations of the Katalevka Formation.
Zh6 [49°11′58.3″N, 138°52′49.9″E]: Schistose feldspathic arenite of the Ust' Kolumbe Formation.
Zh7 [49°12′37.9″N, 138°52′7.3″E]: Feldspathic arenite from the interbedded sandstone and mudstone of the Ust' Kolumbe Formation.
Zh8 [49°15′29.8″N, 138°49′58.3″E]: Baked muddy sandstone of the Ust' Kolumbe Formation, cut by a 56-Ma rhyolitic dike.

Method We separated zircon from each sandstone sample, measured their U-Pb isotopic ratios with the laser ablation inductively coupled plasma mass spectrometer (LA-ICPMS) equipped in the Graduate School of Environmental Studies, Nagoya University, and calculated ^{238}U-^{206}Pb and ^{235}U-^{207}Pb ages from the isotopic ratios. Then we chose concordant grains with the %conc value (100 (^{238}U-^{206}Pb age)/(^{235}U-^{207}Pb age)) between 90 and 110 and drew a probability density plot, a histogram, and a component bar chart (Fig. 1).

Results Figure 1 summarizes the result of our measurements.

Discussion
The age of sedimentation The age of the youngest zircon of each sample (YZ; Fig. 1) constrains the maximum (oldest) age of sedimentation. Three samples of the Amur C. have the YZ corresponding to the Late Jurassic, suggesting that the Amur C. near Khabarovsk City may contain the Upper Jurassic. The Zhuravlevka C. except Zr5 have Early Cretaceous youngest zircons, and the YZs roughly have downward- (eastward-) younging age polarity. The Zhuravlevka C. along the Lidoga–Vanino Road has a similar geochronologic structure with the typical accretionary complex.

Provenance analysis In northeast Asia, 450–900 Ma plutons are distributed along the northeastern margin of the Heilongjiang Province, China, in the Khanka–Jiamusi Block[1)]. Permian plutons widely occur on the southwest of the 450–900 Ma plutons[6)]. Further to the southwest, Early Jurassic plutons occur from northeastern Jilin Province to the Korean Peninsula[4)]. The sandstone provenance of the Amur and Zhuravlevka complexes, having abundant Jurassic–Permian and 450–900 Ma zircons, most likely covered both the Khanka–Jiamusi Block and the northeastern part of the present-day Korean Peninsula.

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