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1:2500 000 Map of Precambrian Dyke Swarms and Related Units in North China

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A 1:2500 000 map of major Precambrian mafic dyke swarms and related units in the North China Craton will be presented, and the features and geological implications of ~30 swarms will be discussed and summarized:

(1) Episode 1 (2540-2500 Ma, Neoproterozoic): represented by the Huangbaiyu and Yanlingguan dykes, and they are related to rifting follow the cratonization.

(2) Episode 2 (2200-2000 Ma, Rhyacian): represented by the Hengling (~2150 Ma), Haicheng (~2120 Ma) and Zanzhuang (~2090 Ma) sill swarms, and the Yixingzhai (~2060 Ma) and Xiawangshan (~1970 Ma) dyke swarms, and some coeval volcanic sequences in several basins, which belong to an intra-continental rifting (the Hengling rift system) in the Eastern North China Craton.

(3) Episode 3 (2000-1850 Ma, Orosirian), represented by the Xuwujia sills/stocks/dykes (1950-1920 Ma) and the Halaqin dykes and volcanics (~1890 Ma), and are related to continental arc-affinitive rifting (the Xuwujia and Korea rift systems) along the east margins of the Eastern and Western North China Craton, respectively.

(4) Episode 4 (1800-1730 Ma, early Statherian): represented by the Taihang (1780-1770 Ma) and Miyun (~1730 Ma) dyke swarms, the Xiong'er volcanic province (~1780 Ma), and a little clastic sedimentation related to the evolution of the Xiong'er rift.

(5) Episode 5 (1730-1600 Ma, late Statherian): represented by the Damiao-Shachang anorthosite-ropakivi granite-dyke complexes (1710-1680 Ma), the Laiwu (~1680 Ma) and Taishan (~1620 Ma) dyke swarms, the Dahongyu lavas (~1620 Ma), and some clastic rocks and a little limestone related to the Yan-Liao rift, the Xiong'er rift, and probably the Bayan Obo rift.

(6) Episode 6 (1400-1200 Ma, Ectasian): represented by the ~1320 Ma dykes-sills- granites and ~1230 Ma Licheng dyke swarm, and the sedimentation dominated by clastic rocks with a little marlstone and limestone possibly limited in the Yan-Liao rift.

(7) Episode 7 (1000-800 Ma, Tonian): represented by the Dashigou (~925 Ma) and Qianlishan (~810 Ma) dyke swarms, the Sariwon-Xuhuai-Luanchuan sills (925-890 Ma), and clastic rocks/carbonates-dominated sediments within the Xu-Huai rift.

Multiple-stages of rifting during 1800-800 Ma (the Earth's middle age) indicates a prolonged and stepwise rifting lasting for 1000 Ma, with the center of the rifts shifted from the south (the Xiong'er rift, 1780-1730 Ma) to the north (the Yan-Liao rift, 1730-1200 Ma) and to the southeast (the Xu-Huai rift, 1000-800 Ma) of North China. And these events support a North China-São Francisco-Congo-North Europe (Sarmatia-Fennoscandia) connection.

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