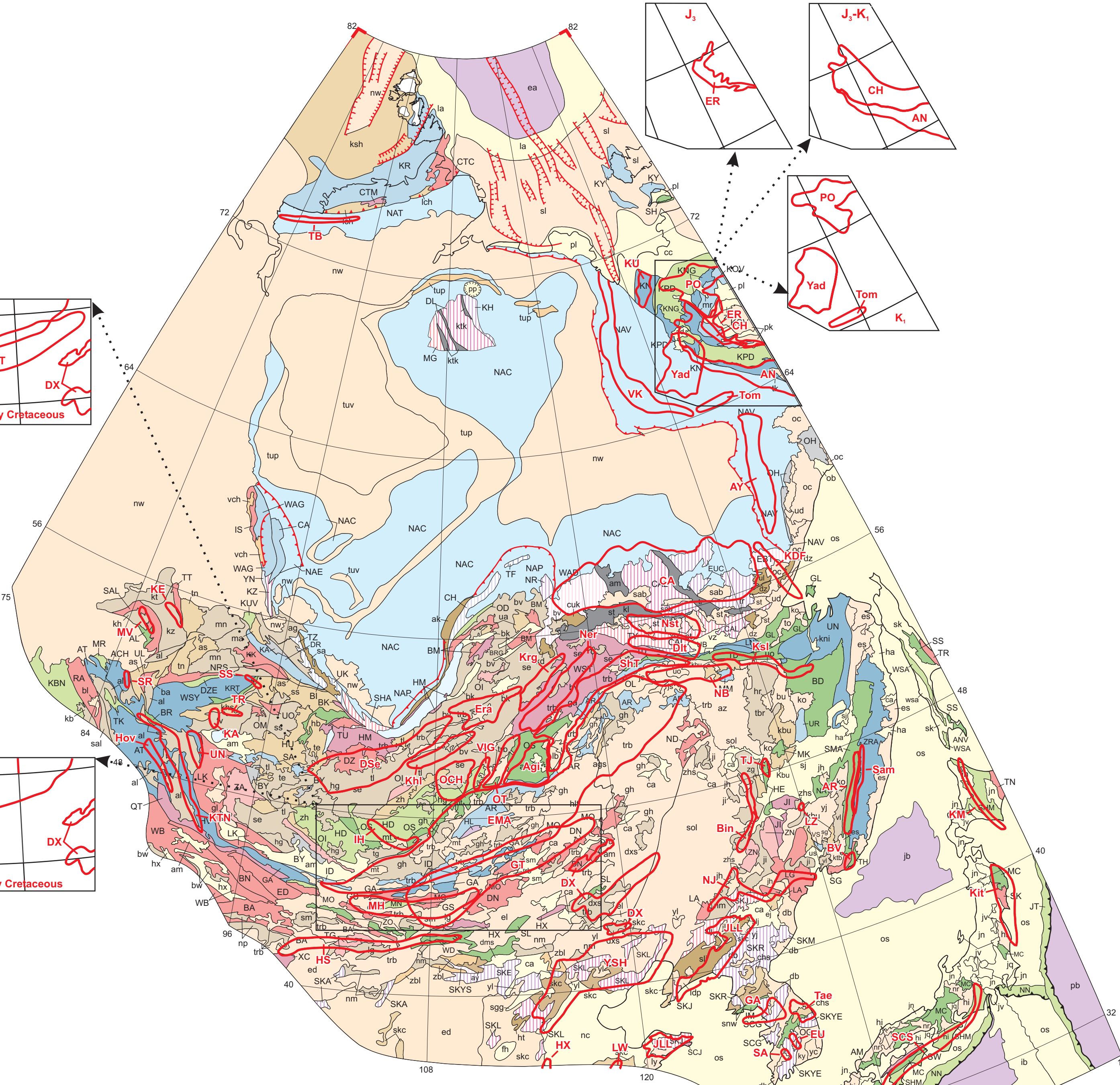
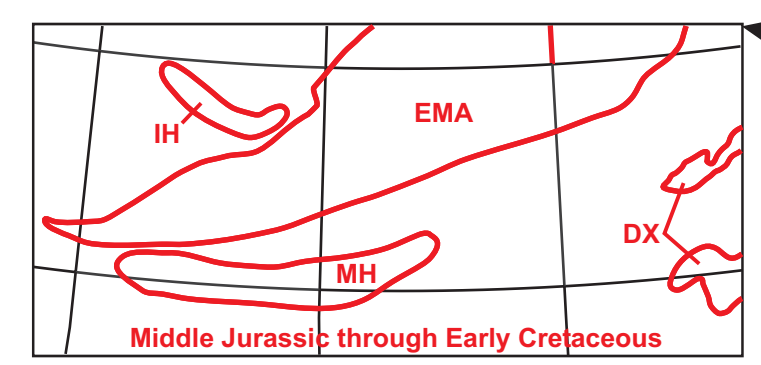
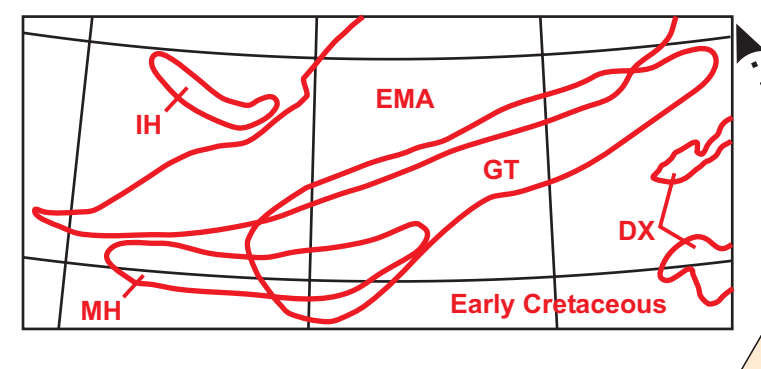


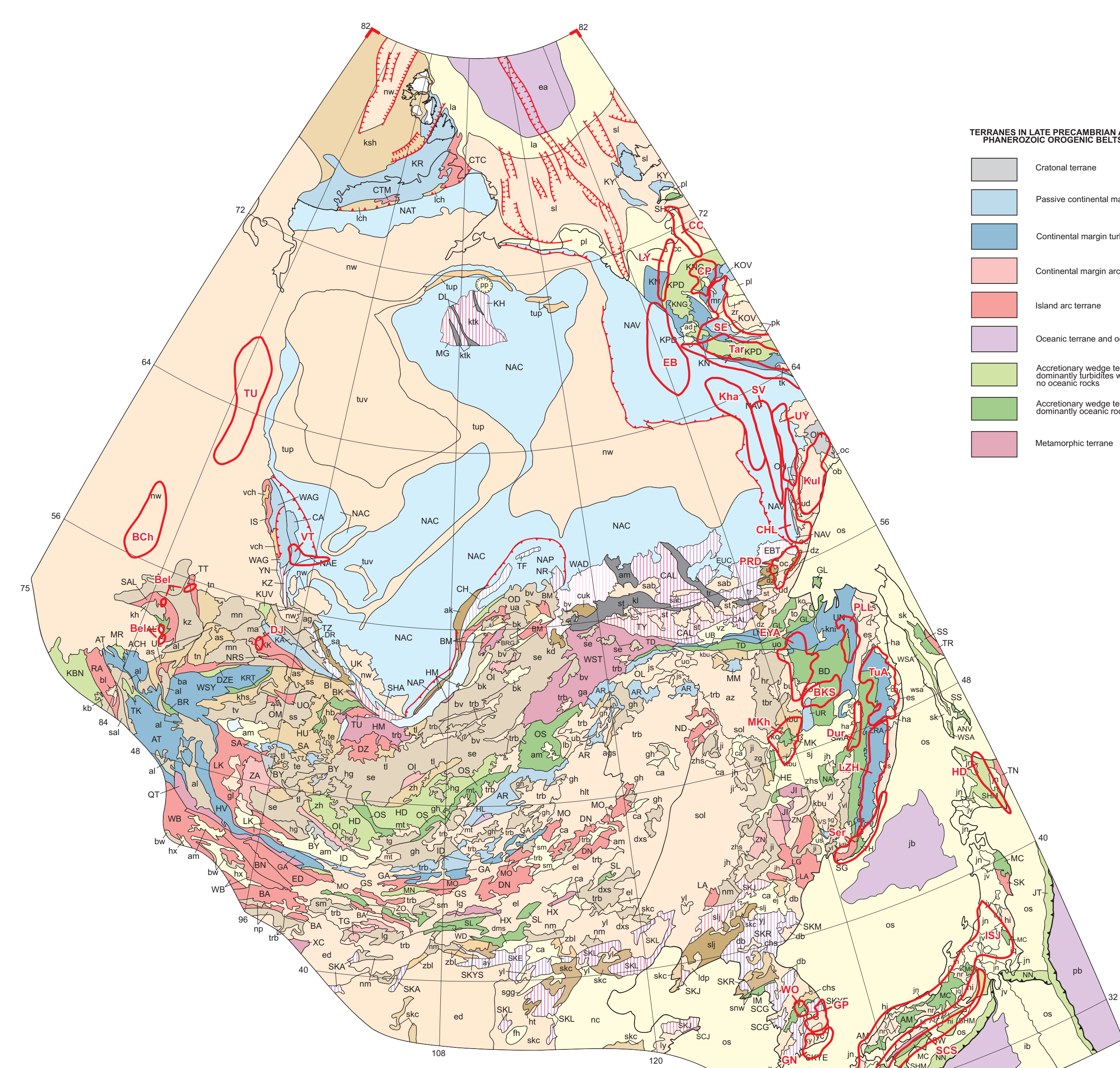
PREPARED IN COLLABORATION WITH
RUSSIAN ACADEMY OF SCIENCES
MONGOLIAN ACADEMY OF SCIENCES
JILIN UNIVERSITY
KOREAN INSTITUTE OF GEOSCIENCE AND MINERALS
GEOLOGICAL SURVEY OF JAPAN/AIST

CONTACTS, FAULTS, AND SYMBOLS

- Secondary contact bordering overlying assemblage
- All contacts between terranes are faults
- Active subduction zone
- Post-Ascretion Faults
 - Thrust
 - Normal fault
 - RR
- Symbols
 - Asterisk
 - Major reef/shelf
 - Lake
 - Metalogenic belt



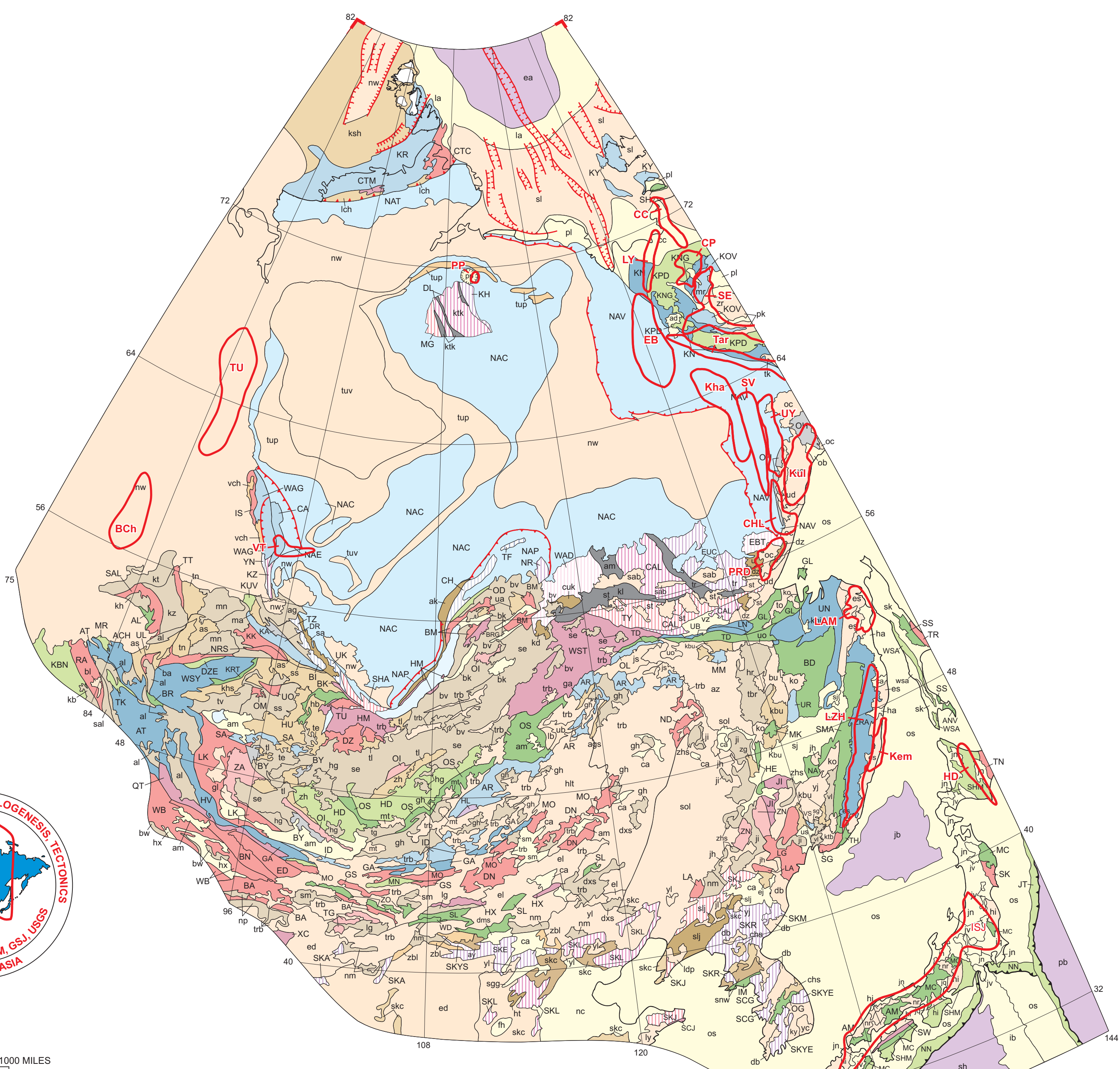
Middle Jurassic through Early Cretaceous
Metallogenic Belts



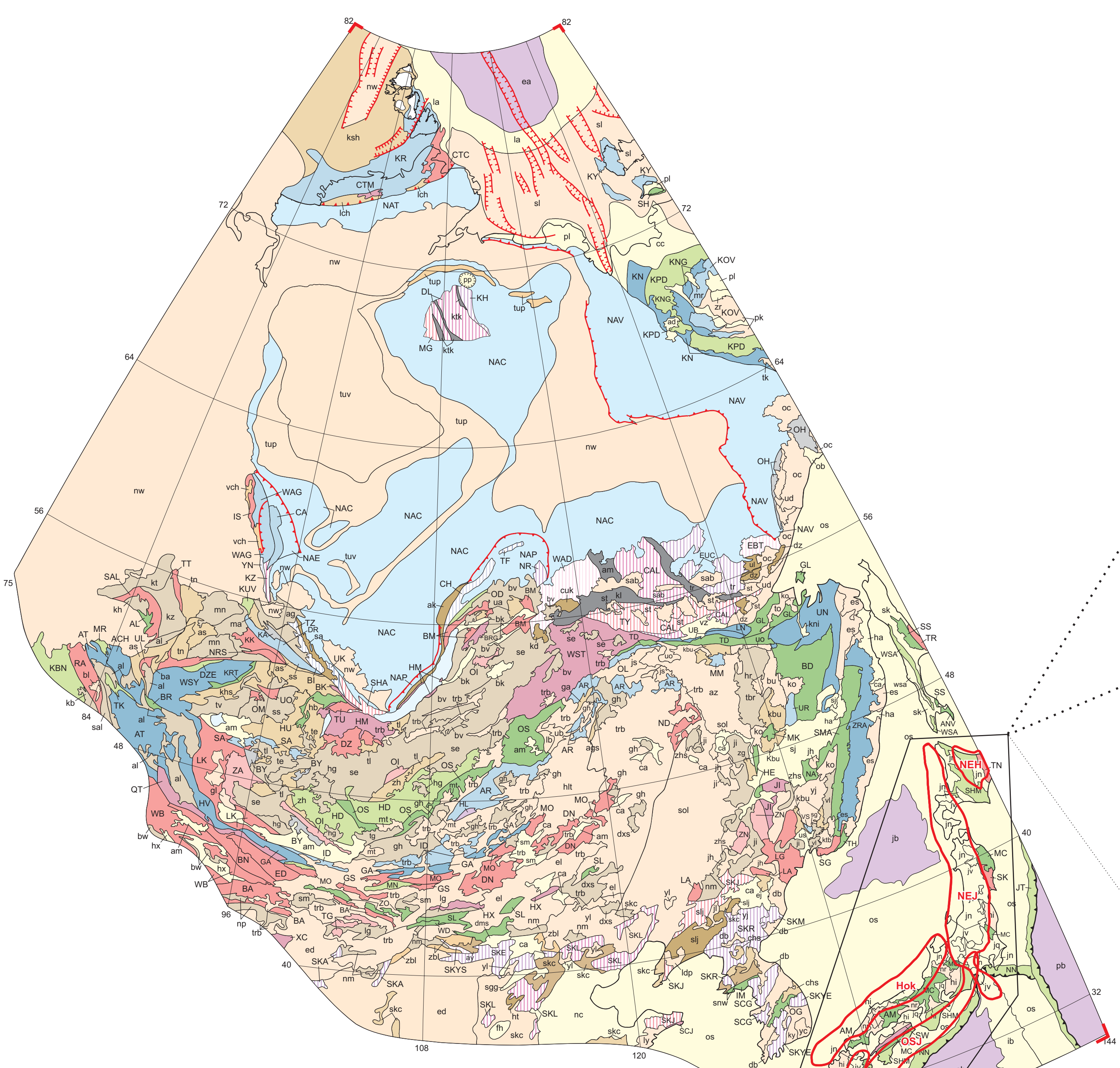
Cenomanian through Campanian
Metallogenic Belts

- EXPLANATION
- TERRANES IN EARLY PRECAMBRIAN AND PHANEROZOIC OROGENIC BELTS
- Cratonic terrane
 - Passive continental margin terrane
 - Continental margin turbidite terrane
 - Continental margin arc terrane
 - Island arc terrane
 - Oceanic terrane and oceanic crust of oceans
 - Accretionary wedge terrane A: dominantly turbidites with lesser or no volcanic rocks
 - Accretionary wedge terrane B: dominantly oceanic rocks with lesser turbidites
 - Metamorphic terrane
 - Granite-gneiss terrane
 - Tonalite-trondhjemite-gabbro terrane
 - Granulite-orthogneiss terrane
 - Granulite-paragneiss terrane
 - Phengite terrane
 - Greenschist terrane
 - Craton with mesogeoclinal overlap and craton margin
 - Major melange zone

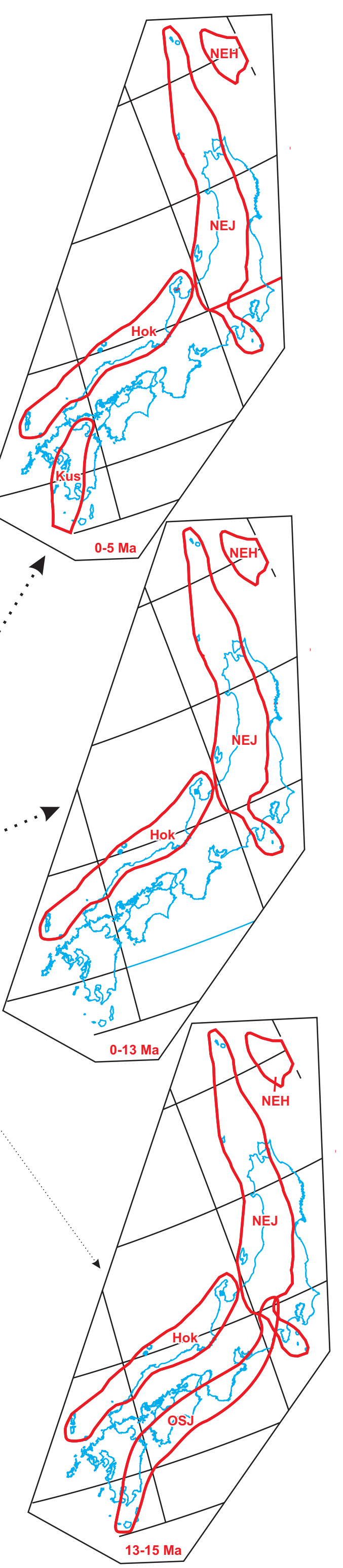
- OVERLAP AND STITCH ASSEMBLAGES
- (Assemblages shown by lighter tints according to right for overlap assemblages with long age span from the color of the oldest map and to brown)
- Cenozoic
 - Mesozoic (Triassic, Jurassic, and Cretaceous)
 - Middle and Late Paleozoic (Devonian through Permian)
 - Late Neoproterozoic and Early Paleozoic (Vendian through Silurian)
 - Neoproterozoic through Rhythian
 - Mesoproterozoic
 - Paleoproterozoic



Late Cretaceous through Paleogene
Metallogenic Belts



Miocene through Quaternary
Metallogenic Belts



SCALE: 1:115,000,000
0 500 1000 MILES
0 200 400 600 800 1000 KILOMETERS
Lambert Azimuthal equal-area projection
Central longitude: 110 degrees East
Central latitude: 60 degrees North
Geographic base from Miller and others (1998, 1999)

PRELIMINARY METALLOGENIC BELT AND MINERAL DEPOSIT MAPS FOR NORTHEAST ASIA:
SHEET 4 - MIDDLE JURASSIC THROUGH QUATERNARY METALLOGENIC BELTS

Compiled by Alexander A. Obolenskiy², Sergey M. Rodionov¹, Gunchin Dejiddmaa³, Ochir Gerel¹¹, Duk Hwan Hwang⁴, Robert J. Miller⁵, Warren J. Nokleberg⁶, Masatsugu Ogasawara⁷, Alexander P. Smelov⁸, Hongquan Yan¹¹, and Zhan V. Seminsky¹⁰

With compilations on specific regions by Sodov Ariunbileg¹, Gennadiy V. Biryul'kin², Jamba Byamba³, Yury V. Davydov⁴, Elimir G. Distanov⁵, Dangindorjiin Dorjgotov¹⁸, Gennadiy N. Gamyanin¹, Valeriy Yu. Fridovskiy¹², Nikolai A. Goryachev¹³, Ayurzana Gotovsuren¹⁴, Alexander I. Khanchuk¹⁵, Anatoliy P. Kochnev¹⁶, Alexei V. Kostin¹⁷, Mikhail I. Kuzmin¹, Sergey A. Letunov¹⁴, Jiliang Li¹¹, Xujun Li¹¹, Galina D. Malceva¹⁰, V.D. Melnikov¹², Valeriy M. Nikitin¹², Leonid M. Parfenov¹², Nikolay V. Popov¹, Andrei V. Prokopiev¹, Vladimir Ratkin¹, Vitaliy I. Shpikerman¹, Vitaliy I. Sotnikov¹, Alexander V. Spiridonov¹, Valeriy V. Stogniy¹², Sadahisa Sudo¹, Fengyue Sun¹¹, Weizhi Sun¹¹, Valeriy M. Suptetsov¹, Vladimir F. Timofeev¹, Oleg A. Tyan¹, Valeriy G. Vetuzhskikh¹, Koji Wakita¹, Aihua Xi¹¹, Yakov V. Yakovlev¹, Qiusheng Zhang¹¹, Vladimir I. Zhizhin¹², Nikolay N. Zinchuk¹⁵, and Lydia M. Zorina¹⁴

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards or with the North American Stratigraphic Code. Any use of trade, firm, or product names in this publication is for descriptive purposes only and does not imply endorsement by the U.S. Government.

This map was printed on an electronic plotter directly from digital files. Dimensional calibration may vary between electronic plotters and between X and Y directions on the same plotter, and paper may change size due to atmospheric conditions; therefore, scale and proportions may not be true on plots of this map.

For sale by U.S. Geological Survey, Information Services, Box 25286, Federal Center, Denver, CO 80225, 1-888-ASK-USA/GS

Digital files available on World Wide Web at: This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards or with the North American Stratigraphic Code. Any use of trade, firm, or product names in this publication is for descriptive purposes only and does not imply endorsement by the U.S. Government.

This map was printed on an electronic plotter directly from digital files. Dimensional calibration may vary between electronic plotters and between X and Y directions on the same plotter, and paper may change size due to atmospheric conditions; therefore, scale and proportions may not be true on plots of this map.

For sale by U.S. Geological Survey, Information Services, Box 25286, Federal Center, Denver, CO 80225, 1-888-ASK-USA/GS

Digital files available on World Wide Web at: <http://geopubs.usgs.gov>

Specific regions for these maps were compiled by the following persons.

Region or Country	Contributors
Eastern Siberia	Elimir G. Distanov, Alexander A. Obolenskiy, Nikolay V. Popov, Vitaliy I. Seminsky
Transbaikalia	Anatoliy P. Kochnev, Mikhail I. Kuzmin, Sergey A. Letunov, Galina D. Malceva, Zhan V. Seminsky, Alexander V. Spiridonov, Lydia M. Zorina
Yakutia	Gennadiy V. Biryul'kin, Yury V. Davydov, Valeriy M. Nikitin, Gennadiy N. Gamyanin, Alexei V. Kostin, Valeriy M. Nikitin, Leonid M. Parfenov, Andrei V. Prokopiev, Alexander P. Smelov, Valeriy V. Stogniy, Valeriy M. Suptetsov, Vladimir F. Timofeev, Oleg A. Tyan, Valeriy G. Vetuzhskikh, Yakov V. Yakovlev, Vladimir I. Zhizhin, Nikolay N. Zinchuk
Russia Far East	Alexander I. Khanchuk, Nikolai A. Goryachev, V.D. Melnikov, Vladimir Ratkin, Sergey M. Rodionov, Vladimir I. Shpikerman
Mongolia	Sodov Ariunbileg, Jamba Byamba, Gunchin Dejiddmaa, Dangindorjiin Dorjgotov, Koji Wakita, Aihua Xi, Qiusheng Zhang
China	Jiliang Li, Xujun Li, Fengyue Sun, Aihua Xi, Qiusheng Zhang, Hongquan Yan
South Korea	Duk Hwan Hwang
Japan	Masatsugu Ogasawara, Sadahisa Sudo, Koji Wakita

¹Russian Academy of Sciences, Khabarovsk
²Russian Academy of Sciences, Novosibirsk
³Mongolian Academy of Sciences, Ulaanbaatar
⁴Mineral Resources Authority of Mongolia, Ulaanbaatar
⁵Korean Institute of Geology, Mining, and Materials, Taejeon
⁶Russian Academy of Sciences, Irkutsk
⁷Geological Survey of Japan/AIST, Tsukuba
⁸U.S. Geological Survey, Menlo Park
⁹Russian Academy of Sciences, Yakutsk
¹⁰Irkutsk State Technical University, Irkutsk
¹¹Jilin University, Changchun
¹²Yakutian State University, Yakutsk
¹³Mongolian University of Science and Technology, Ulaanbaatar
¹⁴Russian Academy of Sciences, Irkutsk
¹⁵Russian Academy of Sciences, Blagoveshchensk
¹⁶Ministry of Industry and Commerce, Mongolia
¹⁷Russian Academy of Sciences, Magadan
¹⁸Mongolian National University, Ulaanbaatar
¹⁹ALROSA Joint Company, Mirny