

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**

INTRODUCTION AND COMPANION STUDIES

This map portrays the geodynamics of Northeast Asia at a scale of 1:5,000,000 using the concepts of plate tectonics and analysis of terranes and overlap assemblages. The map is the result of a detailed compilation and synthesis at 5 million scale and is part of a major international collaborative study of the Mineral Resources, Metallogenesis, and Tectonics of Northeast Asia conducted from 1997 through 2002 by geologists from earth science agencies and universities in Russia, Mongolia, Northeastern China, South Korea, Japan, and the USA.

This map is the result of extensive geologic mapping and associated tectonic studies in Northeast Asia in the last few decades and is the first collaborative compilation of the geology of the region at a scale of 1:5,000,000 by geologists from Russia, Mongolia, Northeastern China, South Korea, Japan, and the USA. The map was compiled by a large group of international geologists using the below concepts and definitions during collaborative workshops over a six-year period. The map is a major new compilation and re-interpretation of pre-existing geologic maps of the region. The map is designed to be used for several purposes, including regional tectonic analyses, mineral resource and metallogenic analysis, petroleum resource analysis, neotectonic analysis, and analysis of seismic hazards and volcanic hazards.

The map consists of two sheets. Sheet 1 displays the map at a scale of 1:5,000,000, explanation. Sheet 2 displays the introduction, list of map units, and source references. Detailed descriptions of map units and stratigraphic columns are being published separately.

This map is one of a series of publications on the mineral resources, metallogenesis, and geodynamics, of Northeast Asia. Companion studies and other articles and maps, and various detailed reports are: (1) a compilation of major mineral deposit models (Rodionov and Nokleberg, 2000; Rodionov and others, 2000; Obolenskiy and others, in press a); (2) a series of metallogenic belt maps (Obolenskiy and others, 2001; in press b); (3) a lode mineral deposits and placer districts location map for Northeast Asia (Ariunbileg and others, in press b); (4) descriptions of metallogenic belts (Rodionov and others, in press); and (5) a database on significant metalliferous and selected nonmetalliferous lode deposits, and selected placer districts (Ariunbileg and others, in press a).

KEY CONCEPTS FOR COMPILATION OF MAP

This map portrays major geologic and tectonic units of the region. The map illustrates both the onshore terranes and overlap volcanic assemblages of the region, including cratons, tectonostratigraphic terranes, and overlap assemblages, major structures, and major offshore geologic feature. Geologic mapping suggests that most of this region can be interpreted as a collage of fault-bounded tectonostratigraphic terranes that were accreted onto cratons and continental margins during the Paleozoic, Mesozoic, and Cenozoic.

A key definition for the map is tectonostratigraphic terrane which is defined as a fault-bounded geologic entity or fragment that is characterized by a distinctive geologic history that differs markedly from that of adjacent terranes (Jones and others, 1983; Howell and others, 1985). A tectonostratigraphic terrane (hereafter referred to as *terrane*) is a fault-bounded, stratigraphically coherent assemblage that formed before tectonic juxtaposition, to adjacent units. A few terranes are mainly subduction zone or accretionary-wedge complexes. The terranes are bounded by various types of major faults or fault zones, termed sutures. Paleontologic, stratigraphic, and paleomagnetic evidence suggests that some terranes were originally widely separated from one another, or from the North Asian, Sino-Korean, or South China (Yangzi) Cratons. On the other hand, other terranes may have formed within a few hundred kilometers of one another and (or) near the same craton.

On the companion map, terranes are interpreted and colored according to inferred tectonic environments. These environments are: (1) cratonal; (2) passive continental margin; (3) metamorphosed continental margin; (4) continental-margin arc; (5) island arc; (6) oceanic crust, seamount, and ophiolite: (7) accretionary wedge and subduction zone; (8) turbidite basin; (9) transform continental-margin arc, and (10) metamorphic for terranes that are too highly-deformed and metamorphosed to determine the original tectonic environment. For terranes with complex geologic histories, the chosen color indicates the tectonic environment most prevalent during this history of the terrane. Terranes in early Precambrian crystalline basement of cratons are also delineated and are colored according to major lithologies.

In addition to terranes, the map also depicts overlap units that occurred after accretion of terranes to each other or to a continental margin and that include: (1) Paleozoic, Mesozoic, and Cenozoic overlap assemblages of sedimentary and volcanic rocks that are deposited across two or more terranes and generally formed after accretion of most terranes in the region; (2) Paleozoic, Mesozoic, and Cenozoic hat occur within a terrane or on cratons; and (3) plutonic rocks. The postaccretion

Koltunova for their skill and assistance during long and complex scientific dialogues, and for translation of complex geologic descriptions and references.

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TECTONOSTRATIGRAPHIC TERRANES (Aranged alphabetically by map symbol within each section)

- Anui-Chuya terrane (Continental margin turbidite) (Early to Late Paleozoic) (Gorny Altai) ACH
- Agardag terrane (Oceanic) (Vendian and Cambrian) (Southern Tuva) AG
- Amil terrane (Accretionary wedge, type A) (Vendian and Cambrian) (Western Sayan) Alambai terrane (Accretionary wedge, type B) (Vendian and Early Cambrian) (South Salair AL
- and northern Gorny Altai) AM Akiyoshi-Maizuru terrane (Accretionary wedge, type B) (Carboniferous and Permian)
- (Japan) AMG Amgun terrane (Continental margin turbidite) (Late Triassic through Middle Jurassic)
- (Southern Russian Far East) Angurep terrane (Metamorphic) (Middle Silurian and older) (South Salair) AN
- ANV Aniva terrane (Accretionary wedge, type B) (Middle Triassic through early Late Cretaceous) (Southern Russian Far East)
- Agoi terrane (Metamorphic) (Pre-Paleozoic) (Eastern Tuva) AO
- AR Argunsky terrane (Passive continental margin) (Paleoproterozoic through late Paleozoic) (Northeast China, Transbaikalia)
- AT Altai terrane (Continental margin turbidite) (Precambrian and Cambrian through Devonian)
- (Southern Gorny Altai, Northwest China, Mongolia) Atamanov terrane (Granulite-paragneiss) (Paleoproterozoic) (Yenisey Ridge)
- AY Ayansk terrane (Passive continental margin) (Ordovician through Late Carboniferous) (Yakutia)
- BA Beitianshan - Atasbogd terrane (Island arc) (Devonian through Carboniferous) (Northwest China, Mongolia)
- BD Badzhal terrane (Accretionary wedge, type B) (Permian through Jurassic) (Southern Russian Far East)
- Bayanleg terrane (Accretionary wedge, type A) (Ordovician to Devonian) (Gobi Altay)
- Bayanhongor Oceanic (Oceanic) (Neoproterozoic) (Western Mongolia)
- Birusa terrane (Paragneiss) (Paleoproterozoic to Neoproterozoic) (Eastern Sayan)
- BK Belava-Kitoy terrane (Metamorphic) (Archean?) (Eastern Sayan)
- Baladek terrane (Metamorphic) (Paleoproterozoic through Ordovician) (Southern Russian BL Far East)
- BLK Belokurikha terrane (Metamorphic) (Late Permian and older) (Northern Gorny Altai)
- Baikal-Muya terrane (Island arc) (Neoproterozoic) (Transbaikalia) BM
- BR Baratal terrane (Accretionary wedge, type B) (Late Neoproterozoic through Early Cambrian) (Southeastern Gorny Altai)
- Barguzin terrane (Metamorphic) (Late Neoproterozoic) (Transbaikalia) BRG
- Borus terrane (Accretionary wedge, type B) (Early Cambrian) (Northwest Sayan) BS BU Bureya terrane (Metamorphic) (Neoproterozoic and older through Triassic) (Southern Russian Far East)
- BY Baydrag terrane (Cratonal) (Neoproterozoic and older) (Northwest Mongolia)
- ΒZ Bazibai terrane (Metamorphic) (Late Neoproterozoic and Cambrian) (Eastern Sayan)
- CA Central Angara terrane (Passive continental margin) (Neoproterozoic) (Yenisey Ridge) Central Aldan superterrane (Yakutia)
- CANM Nimnyr terrane (Granulite-orthogneiss) (Paleoproterozoic) (Yakutia)
- CAST Sutam terrane (Granulite-paragneiss) (Late Archean) (Yakutia)
- CACG Chogar terrane (Granulite-orthogneiss) (Archean) (Yakutia)
- CH Chuja terrane (Paragneiss) (Late Archean through Neoproterozoic) (Transbaikalia)
- Cheongjin terrane (Accretionary wedge, type B) (Permian) (Korea) CHN
- Charysh terrane (Continental margin turbidite) (Cambrian through Devonian) (Northwestern CHR Gorny Altai) Central Taimyr superterrane (Taimyr Peninsula)
- CTC Chelyuskin terrane (Island arc) (Neoproterozoic) (Northeast and Central Taimyr Peninsula)
- Faddey terrane (Metamorphic) (Neoproterozoic and older) (North-East Taimyr CTF Peninsula)
- CTK Kolosovsky terrane (Passive continental margin) (Late Neoproterozoic) (Central Taimyr Peninsula) CTM
- Mamont terrane (Metamorphic) Mesoproterozoic and Neoproterozoic) (Taimyr Peninsula)
 - DB Dibinsky terrane (Accretionary wedge, type A) (Late Neoproterozoic) (Eastern Sayan, Mongolia)
 - Daldyn terrane (Granulite-orthogneiss) (Middle Archean) (Yakutia) DL Donguijmgin-Nuhetdavaa terrane (Island arc) (Cambrian through Middle Devonian) (China. DN

LIST OF MAP UNITS [Geologic time scale units are according to the IUGS Global Stratigraphic Chart (Remane, 1998). For this study, the term Riphean is used for the Mesoproterozoic through Middle Neoproterozoic (1600 to 650 Ma), and the term Vendian is used for Neoproterozoic III (650 to 540 Ma)] **OPEN-FILE REPORT 03-205**

(Western and Eastern Siberia)

Popigay astroblem (Late Eocene) (Yakutia)

(Yakutia)

(Yakutia)

Altai)

Mongolia)

Volcanic part

Plutonic part

China)

Japan)

Japan)

(Mongolia)

Plutonic part

Volcanic part

Volcanic part

Plutonic part

Volcanic part

Sedimentary part

Volcanic-rich part

Plutonic-rich part

Volcanic part

Plutonic par

Peninsula)

China)

(Northeastern China)

Plutonic belt

Mongolia)

North Asian Craton and Craton Margin

Peninsula)

NATT Dominantly clastic rocks

NATC Dominantly carbonate rocks

NATB Dominantly plateau basalt

(Korea)

China)

China)

Cambrian) (Yenisey Ridge)

Middle Jurassic) (Yakutia)

Neoproterozoic) (Transbaikalia)

South China (Yangzi) Craton (Korea and Northeast China)

Sino-Korean Craton (North-Central China and Korea)

Amga tectonic melange zone (Yakutia)

Kalar tectonic melange zone (Yakutia)

Billyakh tectonic melange zone (Yakutia)

Kotuykan tectonic melange zone (Yakutia)

Tyrkanda tectonic melange zone (Yakutia)

Magan tectonic melange zone (Yakutia)

(Northeastern China)

Volcanic-sedimentary basin

(northern Transbaikalia)

Ulkan plutonic belt (Paleoproterozoic) (Yakutia)

Xinjiang Altai plutonic belt (Silurian) (China)

Yong-il sedimentary basin (Cenozoic) (Korea)

Yucheon volcanic belt (Late Cretaceous) (Korea)

Plutonic part

Volcanic part

Plutonic part

Cretaceous) (Yakutia)

Volcanic part

Plutonic part

ob

psm

sab

sev

smb

sms

smv

sol

tbr

trbs

trbv

tuv

ua

ubn

ud

uog

vch

VZ

wsa

yss

zhs

zr

NAE

NAV

SCJ

SKE

SKJ

SKL

SKM

SKR

SKYE

kt

mg

Okhota sedimentary basin (Late Eocene through Miocene) (Russian Far East)

Okinsky (Sedimentary basin) (Ordovician through Devonian) (Eastern Sayan)

Postamalgamation assemblages of the KolymaOmolon superterrane (Yakutia)

Pacific Ocean basin (Cretaceous through Cenozoic) (Pacific Ocean)

Pyeongang sedimentary basin (Carboniferrous to Triassic) (Korea)

Uyandina-Yasachnaya volcanic belt (Late Jurassic) (Yakutia)

Sayan collisional granitic belt (Paleoproterozoic?) (Eastern Sayan)

Shangganhe sedimentary basin (Cenozoic) (Northeast China)

South Sakhalin sedimentary basin (Cenozoic) (Russian Southeast)

Ilin'-Tas back arc basin (Late Jurassic) (Yakutia)

Pacific Ocean seamounts (Cretaceous) (Pacific Ocean)

South Aldan sedimentary basin (Jurassic) (Yakutia)

Subgan granite belt (Paleoproterozoic) (Yakutia)

Svyatoi Nos volcanic belt (Late Jurassic) (Yakutia)

Sangwon sedimentary basin (Paleoproterozoic) (Korea)

Stanovoy granite belt (Jurassic and Early Cretaceous) (Yakutia)

Tyrma-Burensk granitic assemblage (Permian) (Russian Southeast)

South Verkhoyansk granite belt (Late Jurassic) (Yakutia)

Transverse granite belt (Early Cretaceous) (Yakutia)

Tamirgol sedimentary basin (Permian) (Mongolia)

Tyrkanda granite belt (Paleoproterozoic or older) (Yakutia)

Tumangang granite (Late Permian through Late Triassic) (Korea)

Taraka collisional granitic belt (Paleoproterozoic) (Yenisey Ridge)

Early Cretaceous) (Transbaikalia, Mongolia, China)

Tannuola plutonic belt (Cambrian and Ordovician) (Eastern Altai-Sayan)

Tas-Kystabyt magmatic belt (Jurassic) (Yakutia)

Okhotsk-Chukotka volcanic-plutonic belt (late Early Cretaceous and Late Cretaceous)

Primorsk lowland and Laptev sea shelf sedimentary cover (Pliocene through Holocene)

South Altai back-arc basin (Middle Devonian through Early Carboniferous) (Southwestern

Sinegorsk volcanic-plutonic assemblage (Devonian and Mississippian) (Russian Southeast)

Selenga sedimentary-volcanic plutonic belt (Permian through Jurassic) (Transbaikalia,

Sanjiang sedimentary basin and Yishu graben (Mesozoic and Cenozoic) (Northeastern

Shikoku back arc basin (Neogene and Quaternary) (Offshore area south of Japan)

Sedimentary basin of Laptev Sea shelf (Early Cretaceous through Present) (Yakutia)

East Shandong-East Liaoning-East Jilin rift basin (Paleoproterozoic) (Northeastern China)

Seamounts in Japan back-arc basin (Neogene and Quaternary) (Offshore area northwest of

Seamounts in Shikoku back-arc basin (Neogene and Quaternary) (Offshore area south of

South Mongolian volcanic-plutonic belt (Middle Carboniferous through Late Triassic)

Songliao sedimentary basin (Jurassic through Cenozoic) (Northeastern China)

South Yakutian subalkaline and alkaline igneous belt (Early Jurassic through Early

Taidon graben (Middle Cambrian through Early Ordovician) (Northwestern Kuznetsk

Tatarka-Ayakhta collisional granitic belt (Neoproterozoic) (Yenisey Ridge)

Tes volcanic-plutonic belt (Devonian through Late Triassic?) (Mongolia)

Telmen plutonic belt (Middle Cambrian through Early Ordovician) (Mongolia)

Torom sedimentary basin (Late Triassic through Early Cretaceous) (Russian Southeast)

Tungus plateau basalt, sills, dikes, and intrusions (Permian and Triassic) (Siberia)

Jboynaya granite-syenite belt (anorogenic) (Early Triassic) (Taymir Peninsula)

Tuva molasse basin (Middle Devonian through Late Carboniferous) (Tuva)

Uda volcanic-plutonic belt (Late Jurassic and Early Cretaceous) (Yakutia)

Uda sedimentary basin (Late Jurassic and Cretaceous) (Russian Southeast)

Upper Borzja marine molasse basin (Early Jurassic) (Transbaikalia)

Trans-Baikalian-Daxinganling sedimentary-volcanic-plutonic belt (Middle Jurassic through

Upper Angara carbonate sedimentary basin (Late Neoproterozoic thorugh Middle Cambrian)

Umlekam-Ogodzhin volcanic-plutonic belt (Cretaceous) (Northwestern Russian Southeast)

Ussuri sedimentary assemblage (Early Cretaceous through Quaternary) (Russian Southeast)

Urmogtey sedimenary basin (Early and Middle Carboniferous) (Northern Mongolia)

Ust-Taimyr sedimentary assemblage. (Late Jurassic and Early Cretaceous) (Taimyr

Vorogovka-Chapa basin (Late Neoproterozoic through Cambrian?) (Yenisey Ridge)

West Sakhalin sedimentary basin (Paleocene through Quaternary) (Russian Southeast)

Yanji-Jixi-Raohe overlap sedimentary assemblage (Mesozoic and Cenozoic) (Northeast

Yanliao volcanic-sedimentary basin and plutonic belt (Jurassic through Cretaceous)

Yinshan volcanic-sedimentary basin (Jurassic through Cretaceous) (Northeast China)

Zhangguangcailing plutonic belt (Silurian through Ordovician) (Northern China)

Zhangguangcailing sedimentary overlap assemblage (Paleozoic) (Northeast China)

Zhangguangcailiang sedimentary overlap assemblage (Mesozoic) (Northeast China)

CRATONS AND CRATON MARGINS

North Asian Craton Margin (East Angara fold and thrust belt) (Late Neoproterozoic through

North Asian Craton Margin (Verkhoyansk fold and thrust belt) (Carboniferous through

Zag-Haraa turbidite basin (Middle Cambrian through Early Ordovician) (Transbaikalia,

Zhangbei-Bayan Obo-Langshan metasedimentary and metavolcanic rocks (Paleoproterozoic

Vladivostok sedimentary and magmatic assemblage (Permian) (Russian Southeast)

Voronin trough sedimentary basin (Mesozoic through Cenozoic) (Kara Sea)

Verkhnezeya sedimentary basin (Cenozoic) (Russian Southeast)

and Mesoproterozoic) (Western part of Northeast China)

Zyryanka sedimentary basin (Late Jurassic through Cenozoic) (Yakutia)

NAP North Asian Craton Margin (Patom-Baikal fold and thrust belt) (Mesoproterozoic and

North Asian Craton Margin (South-Taimyr fold belt) (Ordovician through Triassic) (Taimyr

SCG Gyenggi terrane (Granulite-paragneiss) (Mesoproterozoic and Neoproterozoic and older)

SKA Alashan terrane (Granulite-paragneiss) (Paleoproterozoic) (North-Central China)

Erduosi terrane (Granulite-paragneiss) (Archean) (North-Central China)

Rangnim terrane (Granulite-paragneiss) (Archean) (Korea)

SKYS Yinshan terrane (Granite-greenstone belt) (Archean) (North-Central China)

Jilin-Liaoning-East Shandong terrane (Tonalite-trondhjemite-gneiss) (Archean)

West Liaoning-Hebei-Shanxi terrane (Granulite-orthogneiss) (Archean) (North-Central

Machollyong terrane (Granulite-paragneiss) (Archean to Paleoproterozoic) (Korea)

Yeongnam terrane (Granulite-paragneiss) (Late Archean to Paleoproterozoic) (Korean)

MAJOR MELANGE ZONES

MAJOR FAULT ZONES

Jiaonan Ultra-High Pressure (UHP) terrane (Metamorphic) (Paleoproterozoic) (Northeastern

NAC North Asian Craton (Archean through Mesozoic) (Siberian Platform)

South Siberian volcanic-plutonic belt (Early Devonian) (Eastern Altai-Sayan)

Sino-Korea platform sedimentary cover (Proterozoic through Triassic) (China)

SHEET 2 OF 2

- SK South Kitakami terrane (Island arc) (Silurian through Cretaceous) (Northeastern Japan) Solon terrane (Accretionary wedge, type B) (Late Carboniferous through Permian) (China, SL Mongolia) SM Sisim terrane (Island arc) (Cambrian) (Eastern Sayan) Samarkina terrane (Accretionary wedge, type B) (Late Permian through Middle Jurassic) SMA (Southern Russian Far East) SN Saratan terrane (Oceanic) (Late Neoproterozoic and Early Cambrian) (Eastern Gorny Altai)
- Spassk terrane (Accretionary wedge, type B) (Cambrian and older through Early Silurian) (Northeastern China, Southern Russian Far East) SR
- Sarkhoy terrane (Island arc) (Late Neoproterozoic) (Northern Mongolia, Eastern Sayan) Sosunay-Langeri terrane (Accretionary wedge, type B) (Jurassic through Paleogene) SS
- (Southern Russian Far East) Sugash terane (Island arc) (Early and Middle Cambrian) (Southern Gorny Altai)
- SU Sambagawa terrane (Metamorphic) (Cretaceous) (Japan) SW
- Talitsk terrane (Continental-margin turbidite) (Cambrian through Early Triassic) TA
- (Northwestern Gorny Altai)
- Tumangang terrane (Island Arc) (Late Carboniferous and Permian) (Korea) TB
- Tukuringra-Dzhagdy terrane (Accretionary wedge, type B) (Silurian through Permian) TD (Southern Russian Far East)
- Tersa terrane (Oceanic) (Late Neoproterozoic) (Central Kuznetsk Alatau)

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- Tonod terrane (Greenschist) (Paleoproterozoic) (Transbaikalia)
- TG Tsagaan Uul-Guoershan Terrane (Continental margin arc) (Paleoproterozoic through Permian) (Mongolia, Northeastern China) ΤH
 - Taukha terrane (Accretionary wedge, type B) (Late Jurassic through Early Cretaceous) (Southern Russian Far East)
- Terekta terrane (Accretionary wedge, type A) (Late Neoproterozoic through Early Cambrian) (Southern Gorny Altai)
- Teletsk terane (Accretionary wedge, type A) (Late Neoprotoerozoic) (Eastern Gorny Altai)
- Tomsk terane (Metamorphic) (Late Neoproterozoic) (Kuznetsk Alatau)
- Tokoro-Nemuro terrane (Island arc) (Late Cretaceous through Paleogene) (Hokkaido Island, TN Japan)
- TO Tannuola subterrane (Island arc) (Cambrian and older?) (Southern Tuva and Northern Mongolia)
- TR Terpeniy terrane (Island arc) (Late Cretaceous) (Southern Russian Far East)
 - Tasuul terrane (Oceanic) (Neoproterozoic) (Western Mongolia)
- Telbes-Kitat terrane (Island-arc) (Neoproterozoic through Devonian) (Kuznetsk Alatau)
- TU Tunka terrane (Island-arc) (Ordovician? and Silurian?) (Eastern Sayan)
- Tynda terrane (Tonalite-trondhjemite-gneiss) (Archean and Paleoproterozoic) (Yakutia) ΤY
- Tumanshet terrane (Paragneiss) (Proterozoic) (Eastern Sayan) ΤZ

Urik-Iya terrane (Greenschist) (Proterozoic) (Eastern Sayan)

West Aldan terrane (Granite-greenstone) (Archean) (Yakutia)

Ordovician) (Northwestern China, Mongolia)

(Western Sayan and eastern Gorny Altai)

Cretaceous) (Southern Russian Far East)

Argun sedimentary basin (Early Paleozoic) (China)

areas between Eastern Asia continent and Japan)

Akitkan volcanic-plutonic belt (Paleoproterozoic) (Transbaikalia)

Asia continent and Japan)

Mongolia, Northwest China)

Alashan plutonic belt (Silurian) (Northeast China)

Anabar anorthositic belt (Archean) (Yakutia)

(eastern Gorny Altai)

Bohai sedimentary basin (Cenozoic) (China)

Bulgugsa granite (Late Cretaceous) (Korea)

Billyahk plutonic belt (Paleoproterozoic) (Yakutia)

Balyktakh volcanic field (Early Cretaceous) (Yakutia)

Kuznetsk Alatau)

Eastern Sayan)

Volcanic-rich part

Plutonic part

Volcanic part

eastern Sayan

Plutonic par

region

Korea)

China)

Russian Far East)

southeastern Eastern Savan)

Volcanic part

Plutonic part

China)

Volcanic part

Plutonic part

Devonian) (Northeastern China)

nangjing terrane (Metamorphic) (Proterozoic) (China)

Yenisey terrane (Paragneiss) (Paleoproterozoic?) (Yenisey Ridge)

Zavhan terrane (Continental margin arc) (Late Neoproterozoic) (Mongolia)

Zhangguangcailing superterrane (Continental margin arc) (Neoproterozoic through

OVERLAP SEDIMENTARY AND VOLCANIC ASSEMBLAGES

(Arranged alphabetically by map symbol)

Abinsk plateau basalt (Early and Middle Triassic) (Southwestern Siberia)

(Offshore areas between Eastern Asia continent and Japan)

Adycha intermountain sedimentary basin (Miocene and Pliocene) (Yakutia)

Zoolen terrane (Accretionarry wedge, type B) (Ordovician(?) and Devonian) (Mongolia)

Zhuravlevsk-Amur River terrane (Continental margin turbidite) (Late Jurassic and Early

Zasurin terrane (Oceanic) (Late Cambrian and Early Ordovician) (Northwestern Gorny Altai)

Agul (Rybinsk) molasse basin (Middle Devonian to Early Carboniferous) (Eastern Sayan)

Asia-Japan continental shelf (late Tertiary and Quaternary) (Offshore areas between Eastern

Asia-Japan backarc basin on rifted continental crust (late Tertiary and Quaternary) (Offshore

Asia-Japan backarc basin on extended continental crust (late Tertiary and Quaternary)

Altai volcanic-plutonic belt (Devonian and Early Carboniferous) (Gorny Altai, Salair,

Altai-Mongolia intermontane basin (Paleogene, Neogene, and Quaternary) (Altai-Sayan

Altai-Sayan back-arc basin (Vendian and Cambrian) (Eastern Gorny Altai, Kuznetsk Alatau,

Altai-Sayan back-arc basin (Biya-Katun unit) (Late Neoproterozoic and Cambrian)

Altai-Sayan back-arc basin (Kizhikhem unit) (Late Neoproterozoic) (southwestern

Amur-Zeya sedimentary basin (Late Jurassic to Quaternary) (Southern Russian Far East)

Baikal sedimentary-volcanic rift belt (Oligocene through Quaternary) (Transbaikalia)

Beitianshan-Waizunger sedimentary basin (Carboniferous through Permian) (China)

Central Asian plateau basalt belt (Neogene and Quaternary) (Russia, Mongolia, China,

Cenozoic undivided sedimentary rocks (Paleogene, Neogene, and Quaternary) (All areas)

Daxingaling sedimentary overlap assemblage (Carboniferous through Permian) (Northeast

East Sikhote-Alin volcanic-plutonic belt (Late Cretaceous through Miocene) (Southern

Gazimur sedimentary basin (Late Neoproterozoic through Early Ordovician) (Transbaikalia)

Gobi-Khankaisk-Daxing'anling volcanic-plutonic belt (Permian) (Mongolia, Transbaikalia,

East Tuva back-arc basin (Late Neoproterozoic and Cambrian) (Eastern Tuva and

Belokurikha plutonic belt (Late Permian through Early Jurassic) (Altai, Mongolia, China)

Bureya sedimentary basin (Early Jurassic to Early Cretaceous) (Southern Russian Far East)

Biya sedimentary basin (Cambrian and Ordovician) (Northeastern Gorny Altai)

(Gornaya Shoriya, Kuznetsk Alatau, Eastern Sayan)

Bogdarin molasse basin (Ordovician? and Devonian?) (Transbaikalia)

Barguzin-Vitim granitoid belt (Late Carboniferous) (Transbaikalia)

Chokhchur-Chekurdakh granite belt (Cretaceous) (Yakutia)

Chara-Uchur rift system (Paleoproterozoic) (Yakutia)

Udokan basin (Paleoproterozoic) (Yakutia)

Uguy basin (Paleoproterozoic) (Yakutia)

Ulkan basin (Paleoproterozoic) (Yakutia)

Daebo granite belt (Early to Late Jurassic) (Korea)

Dzhakhtardakh volcanic field (Cretaceous) (Yakutia)

Dzugdzur anorthositic belt (Paleoproterozoic) (Yakutia)

Fenhe sedimentary basin (Cenozoic) (Northeast China)

East Jlin plutonic belt (Silurian) (Northeast China)

Eurasia oceanic basin (Late Cretaceous through Present) (Arctic ocean)

Erduosi sedimentary basin (Triassic through Cretaceous) (China)

Erlian sedimentary basin (Late Jurassic through Quaternary) (China)

Great Lakes sedimentary basin (Jurassic and Cretaceous) (Mongolia)

Damaoqi sedimentary basin (Cenozoic) (Northeast China)

Chosun sedimentary basin (Cambrian and Ordovician) (Korea)

Alashan-Yinshan plutonic belt (Triassic) (Northwest China)

Alashan-Yinshan plutonic belt (Proterozoic)(Northwest China)

Altai-Sayan back-arc basin (Kiya unit) (Late Neoproterozoic and Cambrian) (northern

Altai-Sayan back-arc basin (Mrassu-Bateni unit) (Late Neoproterozoic and Cambrian)

Ulugo terrane (Island arc) (Early Cambrian) (Tuva)

China, Southern Russian Far East)

(Southern Russian Far East)

Russian Far East)

Mongolia)

Mongolia)

East)

UB Uniya-Bom terrane (Continental margin turbidite) (Late Triassic and Early Jurassic) (Southern Russian Far East) UC Ulus-Cherga terrane (Island arc) (Cambrian) (Gorny Altai)

Ulgey terrane (Island arc) (Neoproterozoic through Devonian) (Mongolia)

Uimen-Lebed terrane (Island arc) (Cambrian through Ordovician) (northeastern Gorny Altai)

Ulban terrane (Continental margin turbiditie) (Late Triassic through Middle Jurassic)

Urmi terrane (Passive continental margin) (Archean through Middle Triassic) (Northeast

Voznesenka terrane (Passive continental margin) (Cambrian through Permian) (Southern

Waizunger-Baaran terrane (Island arc) (Ordovician through Permian) (Northwestern China,

West Angara terrane (Passive continental margin) (Neoproterozoic) (Yenisey Ridge)

Wundurmiao terrane (Accretionary wedge, type B) (Mesoproterozoic through Middle

West Sakhalin terrane (Accretionary wedge, type A) (Cretaceous) (Southern Russian Far

West Stanovoy terrane (Metamorphic) (Archean through Mesoproterozoic) (Transbaikalia,

West Sayan terrane (Continental margin turbidite) (Late Neoproterozoic through Devonian)

units are identified by age-lithologic abbreviations and by name. These overlap assemblages and basinal deposits formed mainly during sedimentation and magmatism. Overlap assemblages provide minimum ages on the timing of accretion of terranes. Some overlap assemblages and basinal deposits, as well as fragments of terranes, are extensively offset by movement along postaccretion faults. In offshore areas, the map depicts major oceanic plates, oceanic spreading ridges, and seamounts. For onshore units, the map also depicts active continental margin and island arc-related assemblages, orogenic belt assemblages, magmatic formations, and transform-plate-boundary-related assemblages. In addition, the map depicts younger neotectonic features, including active faults, active volcanoes, astroblemes, aulacogen, and rifts.

KEY TECTONIC DEFINITIONS

For the compilation, synthesis, description, and interpretation of metallogenic belts, the following mineral deposit, metallogenic, and tectonic definitions are employed. The definitions are adapted from Coney and others (1980), Jones and others (1983), Silberling and others (1984), Howell and others (1985), Monger and Berg (1987), Nokleberg and others (1994a, b, 2001), Wheeler and others (1988), and Scotese and others (2001).

Accretion. Tectonic juxtaposition of two or more terranes, or tectonic juxtaposition of terranes with a craton margin. Accretion of terranes to one another or to a craton margin also defines a major change in the tectonic evolution of terranes and craton margins. Accretionary wedge and subduction-zone terrane. Fragment of a mildly to intensely deformed complex consisting of varying amounts of turbidite deposits, continental-margin rocks, oceanic crust and overlying units, and oceanic mantle. Divided into units composed predominantly of turbidite deposits or predominantly of oceanic rocks, mainly basalt. Units are interpreted to have formed during tectonic juxtaposition in a zone of major thrusting of one lithosphere plate beneath another, generally in zones of thrusting along the margin of a continent or an island arc. May include large fault-bounded units with a coherent stratigraphy. Many subduction-zone terranes contain fragments of oceanic crust and associated rocks that exhibit a complex structural history, occur in a major thrust zone, and possess blueschist-facies metamorphism.

Collage of terranes. Groups of tectonostratigraphic terranes, generally formed in oceanic areas, for which insufficient data exist to separate units.

Craton. Chiefly regionally metamorphosed and deformed shield assemblages of Archean and Early Proterozoic sedimentary, volcanic, and plutonic rocks, and overlying platform successions of Late Proterozoic, Paleozoic, and local Mesozoic and Cenozoic sedimentary and lesser volcanic rocks.

Craton margin. Chiefly Late Proterozoic through Jurassic sedimentary rocks deposited on a continental shelf or slope. Consists mainly of platform successions. Locally has, or may have had an Archean and Early Proterozoic cratonal basement.

Cratonal terrane. Fragment of a craton.

Japanese).

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scale 1:1,000,000 (in Chinese).

1:1,000,000 (in Chinese).

1:1,000,000 (in Chinese)

1:1,000,000 (in Chinese).

11, p.1-23 (in English).

Korean and English)

(in Russian).

scale 1:2.000.000.

Moscow, 240 p. (in Russian)

1:5.000.000 (in Chinese).

sheets, scale 1:1,000,000 (in Chinese).

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Japan Marine Geology Map Series 23, scale 1:3,000,000.

1,000,000.

Chinese).

Chinese).

Continental-margin arc terrane. Fragment of an igneous belt of coeval plutonic and volcanic rocks, and associated sedimentary rocks that formed above a subduction zone dipping beneath a continent. Inferred to possess a sialic basement.

Deposit. A general term for any lode or placer mineral occurrence, mineral deposit, prospect, and (or)

Island-arc terrane. Fragment of an igneous belt of plutonic rocks, coeval volcanic rocks, and associated sedimentary rocks that formed above an oceanic subduction zone. Inferred to possess a simatic pasement.

Metamorphic terrane. Fragment of a highly metamorphosed or deformed assemblage of sedimentary, volcanic, or plutonic rocks that cannot be assigned to a single tectonic environment because the original stratigraphy and structure are obscured. Includes intensely-deformed structural melanges that contain intensely-deformed fragments of two or more terranes.

Metamorphosed continental margin terrane. Fragment of a passive continental margin, in places moderately to highly metamorphosed and deformed, that cannot be linked with certainty to the nearby craton margin. May be derived either from a nearby craton margin or from a distant site.

Oceanic crust, seamount, and ophiolite terrane. Fragment of part or all of a suite of deep-marine sedimentary rocks, pillow basalt, gabbro, and ultramafic rocks that are interpreted as oceanic sedimentary and volcanic rocks and the upper mantle. Includes both inferred offshore oceanic and marginal ocean basin rocks, minor volcaniclastic rocks of magmatic arc derivation, and major marine volcanic accumulations formed at a hotspot, fracture zone, or spreading axis.

Overlap assemblage. A postaccretion unit of sedimentary or igneous rocks deposited on, or intruded into, two or more adjacent terranes. The sedimentary and volcanic parts either depositionally overlie, or are interpreted to have originally depositionally overlain, two or more adjacent terranes, or terranes and the craton margin. Overlapping plutonic rocks, which may be coeval and genetically related to overlap volcanic rocks, link or stitch together adjacent terranes, or a terrane and a craton margin.

Passive continental margin terrane. Fragment of a craton margin.

Subterrane. A fault-bounded unit within a terrane that exhibit similar, but not identical geologic history relative to another fault bounded unit in the same terrane.

Superterrane. An aggregate of terranes that is interpreted to share either a similar stratigraphic kindred or affinity, or a common geologic history after accretion. An approximate synonym is *composite terrane*. *Tectonic linkage.* The interpreted association of a suite of coeval tectonic units that formed in the same region and as the result of the same tectonic processes. An example is the linking of a coeval continentalmargin arc, forearc deposits, a back-arc rift assemblage, and a subduction-zone complex, all related to the underthrusting of a continental margin by oceanic crust.

Tectonostratigraphic terrane. A fault-bounded geologic entity or fragment that is characterized by a distinctive geologic history that differs markedly from that of adjacent terranes (Jones and others, 1983; Howell and others, 1985).

Transform continental-margin arc. An igneous belt of coeval plutonic and volcanic rocks, and associated sedimentary rocks that formed along a transform fault that occurs along the margin of a craton, passive continental margin, and (or) collage of terranes accreted to a continental margin.

Turbidite basin terrane. Fragment of a basin filled with deep-marine clastic deposits in either an orogenic forearc or backarc setting. May include continental-slope and continental-rise turbidite deposits, and submarine-fan turbidite deposits deposited on oceanic crust. May include minor epiclastic and volcaniclastic deposits.

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- Mongolia) DR Derba terrane (Passive continental margin) (Late Neoproterozoic) (Eastern Sayan)
- DZ Dzhida terrane (Island arc) (Late Neoproterozoic and Early Cambrian) (Transbaikalia,
- Mongolia) DZA Dzhagdy terrane (Accretionary wedge, type B) (Late Carboniferous and Permian) (Southern
- Russian Far East) DZE Dzhebash terrane (Accretionary wedge, type A) (Late Neoproterozoic and Early Cambrian)
- (Northwestern Sayan) ED Edren terrane (Island arc) (Devonian and Early Carboniferous) (Southwestern Mongolia)
- East Aldan superterrane (Yakutia) EUC
- Uchur terrane (Granulite-paragneiss) (Paleoproterozoic) (Yakutia) Batomga composite terrane (Granite-greenstone) (Late Archean) (Yakutia)
- EBT ED Edren terrane (Island arc) (Devonian and Early Carboniferous) (Southwestern Mongolia)
- Eravna terrane (Island arc) (Late Neoproterozoic and Early Cambrian) (Transbaikalia) ER
- Govi Altai terrane (Continental-margin turbidite) (Cambrian through Devonian) (Mongolia)
- GG Gargan terrane (Cratonal) (Archean and Paleoproterozoic) (North Huvsgol, Mongolia, Eastern Sayan)
- GL Galam terrane (Accretionary wedge, type B) (Cambrian through Early Carboniferous) (Southern Russian Far East)
- GN Gonzha terrane (Passive continental margin) (Late Archean(?), Paleoproterozoic(?), and early Paleozoic) (Southern Russian Far East)
- Gar terrane (accretionary wedge, type B) (Proterozoic?) (Southern Russian Far East) GR Gurvansayhan terrane (Island arc) (Silurian through Early Carboniferous) (Southern GS
- Mongolia) Hangay-Dauria terrane (Accretionary wedge, type A) (Silurian through Late Carboniferous) HD (Transbaikalia, Mongolia)
- HE Heilongjiang terrane (Accretionary wedge, type B) (Ordovician and Silurian) (Northeastern China)
- HG Hegenshan terrane (Accretionary wedge, type B) (Devonian through Permian) (Southeastern Mongolia, Northeastern China)
- Hida terrane (Metamorphic) (Jurassic) (Central Japan)

HI

IM

KRT

ΚT

KTN

KU

KUV

- Herlen terrane (Oceanic) (Late Neoproterozoic through Early Cambrian) (Eastern Mongolia).
- HM Hamar-Davaa terrane (Metamorphic) (Paleoproterozoic through Early Cambrian) (Mongolia and Transbaikalia)
- HU Hug terrane (Accretionary wedge, type B) (Neoproterozoic) (Northern Mongolia, Eastern Sayan)
- ΗV Hovd terrane (Continental-margin turbidite) (Neoproterozoic through Silurian) (Mongolia
- Altav) ΗX Hutaguul-Xilinhot terrane (Metamorphic) (Paleoproterozoic and Neoproterozoic) (Mongolia Northern China)
- Izu-Bonin terrane (Island arc) (Miocene through Quaternary) (Japan)
- Idermeg terane (Passive continental margin) (Proterozoic and Cambrian) (Eastern Mongolia)
- Igarka terrane (Island arc) (Neoproterozoic) (Yenisey Region) Ih Bogd terrane (Oceanic) (Neoproterozoic and Early Cambrian) (Gobi Altay, southwestern
- Mongolia) Ilchir terrane (Oceanic) (Neoproterozoic through Ordovician) (Eastern Sayan, Mongolia)
- Imjingang terrane (Accretionary wedge, type B) (Devonian) (Korea)
- Isakov terrane (Island arc) (Neoproterozoic) (Yenisey Ridge)
- Jiamusi terrane (Metamorphic) (Neoproterozoic and older and Early Cambrian) (China) Japan trench terrane (Accretionary wedge, type A) (late Tertiary and Quaternary) (Western
- Pacific Ocean) KA Kan terrane (Cratonal) (Paleoproterozoic) (Eastern Sayan)
- Khabarovsk terrane (Accretionary wedge, type B) (Triassic through Middle Jurassic) KB (Southern Russian Far East)
- KBG Kabarga terrane (Accretionary wedge, type A) (Neoproterozoic and early Paleozoic) (Southern Russian Far East)
- Kalba-Narim terrane (Accretionary Wedge, type A) (Ordovicinan through Early KBN Carboniferous) (Kalba-Narim area)
- Kema terrane (Island arc) (late Early Cretaceous) (Southern Russian Far East)
- Khapchan terrane (Granulite-paragneiss) (Paleoproterozoic) (Yakutia) KH
- KHM Khamsara terrane (Island arc) (Cambrian) (Northeastern Tuva)
- Kanim terrane (Island arc) (Late Neoproterozoic and Early Cambrian) (Central Kuznetsk KI Alatau)
- KK Kizir-Kazir terrane (Island arc) (Cambrian) (Southwestern Eastern Sayan)
- Kiselyovka-Manoma terrane (Accretionary wedge, type B) (Jurassic and Early Cretaceous) KLM (Southern Russian Far East)
- KΜ Kamensky terrane (Continental margin arc) (Early and Middle Triassic) (Transbaikalia)
- Kular-Nera terrane (Continental margin turbidite) (Permian through Early Jurassic) (Yakutia) KN
- Khor terrane (Island arc) (Early Paleozoic?) (Southern Russian Far East) KO KOZ Kozhukhov terrane (Island arc) (Late Neoproterozoic and Cambrian) (Northern Kuznetsk
- Alatau)
- Kolvma-Omolon superterrane (Yakutia)

(Southern West Savan)

(Tuva)

Altai)

- KMN Munilkan terrane (Oceanic) (early Paleozoic) (Yakutia)
- Omulevka terrane (Passive continental margin) (late Neoproterozoic through Triassic) KOV (Yakutia)
- KPD Polousnyi-Debin terrane (Accretionary wedge, type A) (Jurassic) (Yakutia) Nagondzha terrane (Continental margin) (Carboniferous through Late Triassic) KNG (Yakutia)
- KPR Kyushu-Palau terrane (Island arc) (Paleocene) (Western Pacific Ocean)

Kurai terrane (Island arc) (Early Cambrian) (Eastern Gorny Altai)

Kara terrane (Continental margin turbidite) (Late Neoproterozoic) (northern part of Taimyr KR Peninsula)

Kurtushiba terrane (Accretionary wedge, type B) (Late Neoproterozoic and Early Cambrian)

Khemchik-Tapsa terrane (Accretionary wedge, type A) (Cambrian through Ordovician)

Kaitanak terrane (Accretionary wedge, type B) (Early Paleozoic or older)(Southern Gorny

Kuvai terrane (Accretionary wedge, type A) (Neoproterozoic) (Northwestern Eastern Sayan)

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(Southern Russian Far East) Mandah terrane (Accretionary wedge, type A) (Devonian) (Southern Mongolia) Maralikha terrane (Accretionary wedge, type A) (Middle Devonian or older) (Northwestern Gorny Altai) Muya terrane (Metamorphic) (Late Archean? and Paleoproterozoic?) (Transbaikalia) Matveevka terrane (Metamorphic) (Archean? or Proterozoic?) (Southern Russian Far East) Nadanhada terrane (Accretionary wedge, type B) (Middle Triassic through Middle Jurassic) (Northern China) Nabilsky terrane (Accretionary wedge, type B) (Late Cretaceous through Paleogene) (Southern Russian Far East) Nora-Sukhotin-Duobaoshan terrane (Island arc) (Neoproterozoic through Early Carboniferous) (Mongolia, Northeastern China, Russian Far East) Nakhimovka terrane (Metamorphic) (Archean? or Proterozoic?) (Southern Russian Far East) Nilan terrane (Accretionary wedge, type B) (Devonian through Permian) (Southern Russian klr Far East) Nankai terrane (Accretionarry wedge, type A) (Miocene through Quaternary) (Western Pacific Ocean, Central Japan) Volcanic part North Margin terrane (Accretionary wedge, type B) (Carboniferous and Early Permian) Plutonic part (Northeastern China) Nechera terrane (Granulite-paragneiss) (Archean? and Proterozoic) (Transbaikalia) North Sayan terrane (Island arc) (Neoproterozoic and Early Cambrian) (Northwestern Sayan) ks Olokit-Delunuran terrane (Accretionary wedge, type A) (Paleoproterozoic through Neoproterozoic) (Transbaikalia) ksh Ogcheon terrane (Accretionary wedge, type B) (Proterozoic) (Korea) Okhotsk terrane (Cratonal) (Archean through Jurassic) (Yakutia) Orhon-Ikatsky terrane (Continental margin arc) (Late Neoproterozoic through Silurian) kul (Mongolia, Transbaikalia) Oldoy terrane (Passive continental margin) (Silurian through Early Carboniferous) (Southern Russian Far East) Ondum terrane (Island arc) (Late Neoproterozoic through Ordovician) (Southern Tuva) Olenek terrane (Greenschist) (Paleoproterozoic) (Yakutia) lch Ononsky terrane (Accretionary wedge, type B) (Neoproterozoic? or Silurian?) Peninsula) (Transbaikalia, Mongolia) Onot terrane (Granite-greenstone) (Middle Archean? or Paleoproterozoic?) (Eastern Sayan) Orogen-Zalantun terrane (Metamorphic) (Proterozoic) (Mongolia, China) Poputninsk terrane (Oceanic) (Mesoproterozoic and Neoproterozoic) (Yenisey Ridge) Predivinsk terrane (Island arc) (Late Neoproterozoic) (Yenisey Ridge) ma Qinghe-Tsel terrane (Metamorphic) (Mesoproterozoic and Neoproterozoic) (China, Eastern Sayan) Mongolia) mb Rudny Altai terrane (Island arc) (Late Silurian through Early Carboniferous) (Rudny Altai mch Upland) mn Sangilen terrane (Passive continental margin) (Paleoproterozoic or Neoproterozoic) Savan) (Southeastern Tuva, Mongolia) Salair terrane (Island arc) (Early Cambrian through Early Ordovician) (Salair Ridge) Seluohe terrane (Accretionary wedge, type B) (Neoproterozoic) (Northeastern China) (Mongolia) Sergeevka terrane (Island arc) (Cambrian? and Ordovician?) 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Huvsgol-Bokson sedimentary overlap assemblage (Late Neoproterozoic through Middle Cambrian) (Mongolia, Eastern Sayan) Hangay plutonic belt (Late Carboniferous and Early Permian) (Mongolia) Huanghai sedimentary basin (Mesozoic through Cenozoic) (China) ADAdycha-Taryn fault Hiroshima granitic plutonic belt (Cretaceous and Paleogene) (Japan) AMAmur fault Hailar-Tamsag sedimentary basin (Late Jurassic and Cretaceous) (Eastern Mongolia and BL Bilyakchan fault Northeastern China) BTL Butsuzo tectonic line Hongjesa granite (Proterozoic) (Korea) Central Sikhote-Aline fault CS Kharinsk granitic assemblage (Triassic) (Russian Southeast) Charysh-Terekta strike-slip fault CTHyesan granite (Permian to Triassic) (Korea) DGDochgol thrust fault Hutuo rift basin (Paleoproterozoic) (China) Eastern Sayan strike-slip fault ETHexizoulang sedimentary basin (Jurassic through Cenozoic) (Northern China) FTFutaba shear zone Izu-Bonin volcanic belt (Miocene through Quaternary) (Western Pacific Ocean) Gobi-Tien Shan fault GT Japan basin (Neogene and Quaternary) (west of Hokkaido Island) Hatagawa shear zone HT Jihei volcanic and plutonic belt (Mesozoic) (Northeast China) Irtysh shear zone Jihei plutonic belt (Permian) (Northeastern China) shimba fault Japan and Izu-Bonin forearc basin (Paleogene through Quaternary) (Western Pacific Ocean) Itoigawa Shizuoka tectonic line ISTL Jilin-Liaoning-East Shandong volcanic-plutonic belt (Late Jurassic and Cretaceous) Jzhuinsky strike-slip fault .JN (Southeastern part of Northeastern China) Kuznetsk-Altai strike-slip fault KAJapan Cenozoic sedimentary basin (Paleogene and Neogene) (Japan) Kandat strike-slip fault KDJapan Quaternary sedimentary basins (Quaternary) (Japan) KYKyllak thrust fault Jasong volcanic belt (Jurassic) (Korea) Lower Aldan thrust fault LA Japan sedimentary basin (Mesozoic) (Japan) Len thrust fault LEJapan volcanic belt (Quaternary) (Japan) MK Mikabu tectonic line Kan collisional granitic belt (Neoproterozoic) (Yenisey Ridge) MO Kalba-Narym plutonic belt (Late Carboniferous through Early Triassic) (Kalba-Narym area) MSKhanka-Bureva granitic belt (Ordovician and Silurian) (Russian Southeast) MTMain Taimyr thrust fault Kodar granitic belt (Paleoproterozoic) (Yakutia) MTL Median tectonic line Khmelev back-arc basin (Devonian and Carboniferous) (Southwestern Salair) Nenjiang strike-slip fault NJKhemchik-Sistigkhem basin (Middle Cambrian through Silurian) (Tuva) NP Kalar anorthosite belt (Paleoproterozoic) (Yakutia) PFKonino-Nimelen sedimentary basin (Neogene and Quaternary) (Russian Southeast) Khingan-Okhotsk volcanic-plutonic belt (Cretaceous) (Southern Russian Far East) Stanovoy strike-slip fault ST Tatarka-Ayakhta fault Turgin Gol fault Kara granitic belt (collisional and postcollisional) (Late Carboniferous and Early Permian) Tanlu strike-slip fault (Taimvr Peninsula) Tanakura tectonic line Kuznetsk-Sayan plutonic belt (Early Silurian to Early Devonian) (Kuznetsk Alatau, West Yana-Indigirka fault Sayan, Tuva, Altai) Zuunbayan fault ZBKara Sea shelf sedimentary cover (Cambrian thorugh Permian) (Kara Sea) Kolyvan-Tom back-arc basin (Devonian to Permian) (Kalyvan-Tom area) Khungari-Tatibi granitic belt (Middle Cretaceous) (Russian Southeast) Kular granite belt (Early Cretaceous) (Yakutia) Kyongsang sedimentary basin (Early Cretaceous) (Korea) Kuznetsk orogenic basin (Devonian to Early Triassic) (Kuznetsk area) Laptev Sea continental slope (Late Cretaceous through Oligocene) (Arctic ocean) Lower Borzja fore-arc basin (Early Carboniferous through Early Triassic) (Transbaikalia) Lenivaya-Chelyuskin sedimentary assemblage (Vendian through Carboniferous) (Taimyr Liaodong plutonic belt (Triassic) (Northeast China) Lugyngol volcanic-sedimentary basin (Permian) (Southeastern Mongolia) Laiyang volcanic -sedimentary basin (Cretaceous) (Northeast China) Lower Lena graben sedimentary rocks (Paleocene through Early Eocene) (Yakutia) Mana sedimentary basin (Late Neoproterozoic through Middle Cambrian) (Northwestern Main granite belt (Late Jurassic) (Yakutia) Myongchon sedimentary basin (Cenozoic) (Korea) Minusa molasse basin (Middle Devonian through Early Permian) (Kuznetsk Alatau, Eastern Moma rift sedimentary basin (Miocene and Pliocene) (Yakutia) Mongol-Transbaikalia volcanic-plutonic belt (Late Triassic through Early Cretaceous) Northern granite belt (Early Cretaceous) (Yakutia) North China sedimentary basin (Cenozoic) (southeast part of Northeastern China) North marginal plutonic belt of North China Platform (Carboniferous and Permian) (Northeastern China) Noyon foreland basin (Middle Triassic through Early Jurassic) (Mongolia)

Mongol-Okhotsk strike-slip fault Main Sayan strike-slip fault Nepsky overthrust-fold zone Pyasina-Faddey thrust fault Sayan-Tuva strike-slip fault

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