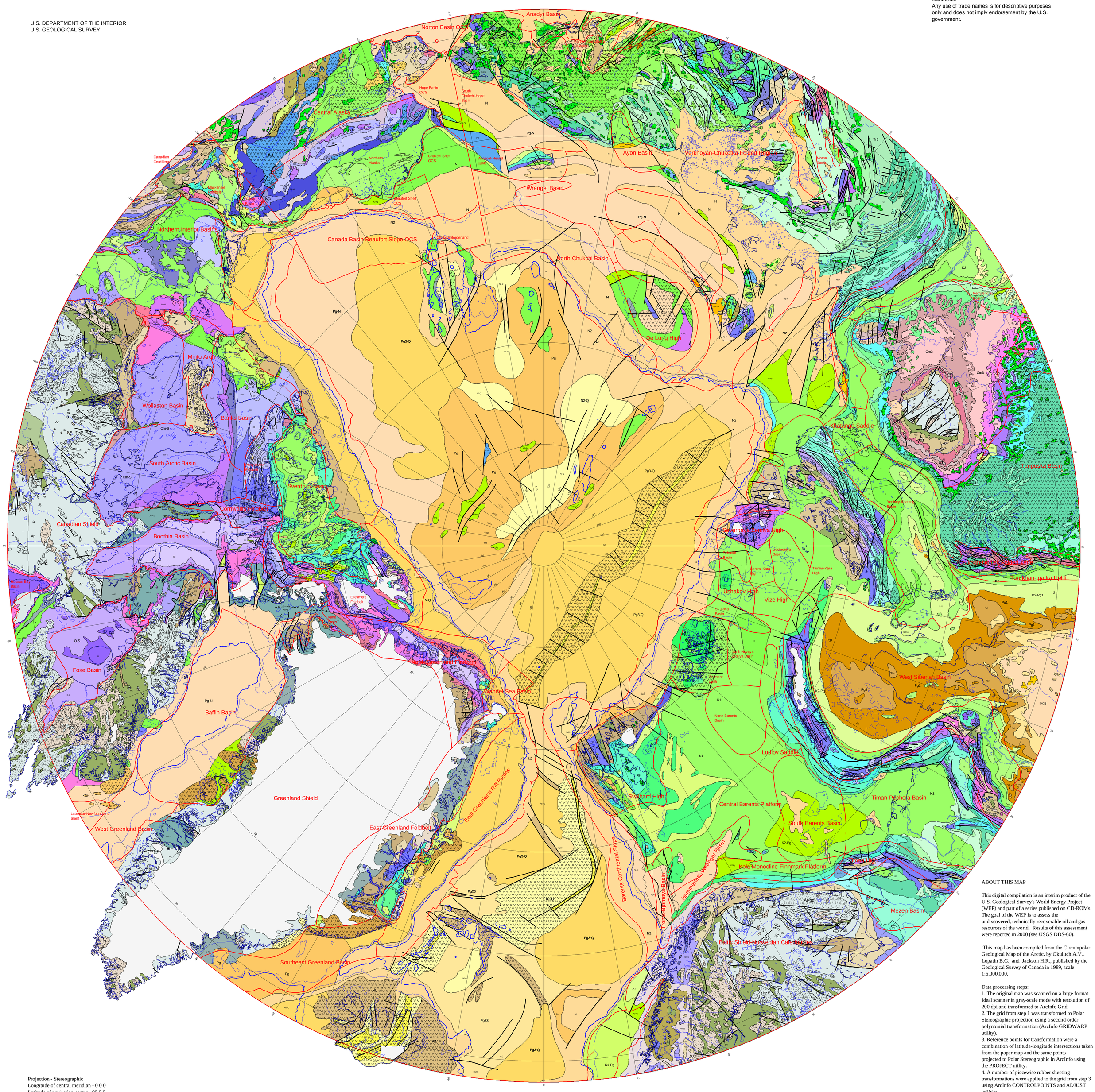
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY



Projection - Stereographic
Longitude of central meridian - 0 0 0
Latitude of projection center - 90 0 0
View - NORTHPOLE
Latitude of standard parallel - 75 0 0

EXPLANATION

Sedimentary and Volcanic Rock Age

Cenozoic

- Q — Quaternary
- N-Q — Neogene and Quaternary
- N2-Q — Pliocene to Quaternary
- N2-Q1 — Pliocene to lower Quaternary
- N — Neogene
- N2 — Pliocene
- N1 — Miocene
- Pg-N — Paleogene and Neogene
- Pg3-Q — Oligocene to Quaternary
- Pg3-N1 — Oligocene to Miocene
- Pg2-N — Eocene to Neogene
- Pg2-N1 — Eocene to Miocene
- Pg — Paleogene
- Pg3 — Oligocene
- Pg23 — Eocene and Oligocene
- Pg2 — Eocene
- Pg12 — Paleocene and Eocene
- Pg1 — Paleocene

Mesozoic

- Mz — Mesozoic
- K2-Pg — Upper Cretaceous and Paleogene
- K1-Pg — Lower Cretaceous to Paleogene
- K2-Pg1 — Upper Cretaceous to Paleocene
- K1-Pg1 — Lower Cretaceous to Paleocene
- K — Cretaceous
- K2 — Upper Cretaceous
- K1 — Lower Cretaceous
- J-K — Jurassic and Cretaceous
- J-K1 — Jurassic to Lower Cretaceous
- J3-K1 — Upper Jurassic to Lower Cretaceous
- J — Jurassic
- J3 — Upper Jurassic
- J23 — Middle and Upper Jurasssic
- J2 — Middle Jurassic
- J12 — Lower and Middle Jurasssic
- J1 — Lower Jurassic
- Tr-J — Triassic and Jurassic
- Tr3-J1 — Upper Triassic to Lower Jurassic
- Tr — Triassic
- Tr3 — Upper Triassic
- Tr23 — Middle and Upper Triassic
- Tr2 — Middle Triassic
- Tr12 — Lower and MiddleTriassic
- Tr1 — Lower Triassic

Paleozoic

- Pz-Mz — Paleozoic and Mesozoic
- Pz2-Tr — Upper Paleozoic to Triassic
- Pz — Paleozoic
- P-J — Permian to Jurassic
- P-Tr — Permian to Triassic
- P2-Tr — Upper Permian to Triassic
- P — Permian
- P2 — Upper Permian
- P1 — Lower Permian
- C-P — Carboniferous and Permian
- C2-P1 — Upper Carboniferous to Lower Permian
- C-P1 — Carboniferous to Lower Permian
- C-J — Carboniferous to Jurassic
- C-Tr — Carboniferous to Triassic
- C — Carboniferous
- C2 — Upper Carboniferous
- C1 — Lower Carboniferous
- D-C — Devonian and Carboniferous
- D3-C — Upper Devonian to Carboniferous
- D-C1 — Devonian to Lower Carboniferous
- D — Devonian
- D3 — Upper Devonian
- D23 — Middle and Upper Devonian
- D2 — Middle Devonian
- D12 — Lower and Middle Devonian
- D1 — Lower Devonian

Lower Paleozoic - Precambrian

- Pz1 — Lower Paleozoic
- S-D — Silurian and Devonian
- S — Silurian
- S2 — Upper Silurian
- S1 — Lower Silurian
- O-D — Ordovician to Devonian
- O-S — Ordovician and Silurian
- O — Ordovician
- O23 — Middle and Upper Ordovician
- O1 — Lower Ordovician
- Cm-D — Cambrian to Devonian
- Cm-S — Cambrian to Silurian
- Cm-O — Cambrian and Ordovician
- Cm — Cambrian
- Cm3 — Upper Cambrian
- Cm23 — Middle and Upper Cambrian
- Cm2 — Middle Cambrian
- Cm12 — Lower and Middle Cambrian
- Cm1 — Lower Cambrian
- Pr-Pz1 — Proterozoic to lower Paleozoic
- Pr3-Pz1 — Upper Proterozoic to lower Paleozoic
- Pr3-S — Upper Proterozoic to Silurian
- Pr-Cm — Proterozoic to Cambrian
- Pr3-Cm — Upper Proterozoic to Cambrian
- Pr23-Cm — Middle and Upper Proterozoic to Cambrian
- Pr — Proterozoic
- Pr3 — Upper Proterozoic
- Pr23 — Middle and Upper Proterozoic
- Pr2 — Middle Proterozoic
- Pr12 — Lower and Middle Proterozoic
- Pr1 — Lower Proterozoic
- Ar-Pr — Archean and Proterozoic
- Ar-Pr1 — Archean and Lower Proterozoic
- Ar — Archean

Intrusive Rock Age

- Cz — Cenozoic
- Mz — Mesozoic
- Pz — Paleozoic
- Pr — Proterozoic
- Ar — Achean

Intrusive Rock Composition

- alkaline
- basic
- diorite
- granodiorite
- granite
- syenogranite
- ultramafic

Volcanic Rock

- volcanic

Geologic Line Feature

- Detachment Fault
- Facies Contact
- Normal Fault
- Shoreline (source geologic map)
- Spreading Center
- Strike-slip fault
- Thrust Fault

Water Depth Contours (IBCAO-2001)

- -1000 m
- -500 m
- -100 m
- Shoreline (ESRI's ArcWorld)
- Ice

- USGS Geologic Province (DDS-60)
- Latitude-Longitude Grid

590 295 0 590 1,180 Kilometers

380 190 0 380 760 Miles

Circumpolar Geologic Map of the Arctic

Digitally compiled by Feliks M. Persits and Gregory F. Ulmishek

2003

ABOUT THIS MAP

This digital compilation is an interim product of the U.S. Geological Survey's World Energy Project (WEP) and part of a series published on CD-ROMs. The goal of the WEP is to assess the undiscovered, technically recoverable oil and gas resources of the world. Results of this assessment were reported in 2000 (see USGS DDS-60).

This map has been compiled from the Circumpolar Geological Map of the Arctic, by Okulitch A.V., Lopatin B.G., and Jackson H.R., published by the Geological Survey of Canada in 1989, scale 1:6,000,000.

Data processing steps:
1. The original map was scanned on a large format Ideal scanner in gray-scale mode with resolution of 200 dpi and transformed to ArcInfo Grid.
2. The grid from step 1 was transformed to Polar Stereographic projection using a second order polynomial transformation (ArcInfo GRIDWARP utility).
3. Reference points for transformation were a combination of latitude-longitude intersections taken from the paper map and the same points projected to Polar Stereographic in ArcInfo using the PROJECT utility.
4. A number of piecewise rubber sheeting transformations were applied to the grid from step 3 using ArcInfo CONTROLPOINTS and ADJUST utilities.
5. Reference points for transformation were taken from ESRI's shoreline data layer projected to Polar Stereographic projection.
6. On-screen digitization was performed using the rectified grid from step 5 as a backdrop in ArcInfo ARCEDIT.
7. In the geology coverage, the geologic attributes were assigned to the AGE and AGE_GEN items of the Polygon Attribute Table (PAT). Onshore and offshore polygons were attributed separately.
8. Geologic age attributes of the Canadian portion of this map were compared with those from the Geological Map of Canada CD-ROM (Map D1860A, 1997). As the first step more than 600 unique values from Map D1860A were transformed to the corresponding ages of this map legend and used as a reference in assigning final age values.
The geology beneath some ice fields was adopted from the Geological Map of Canada (D1860A).
9. The USGS Geologic Provinces from the USGS DDS-60 publication were projected to Polar Stereographic projection and clipped by the geology coverage.
