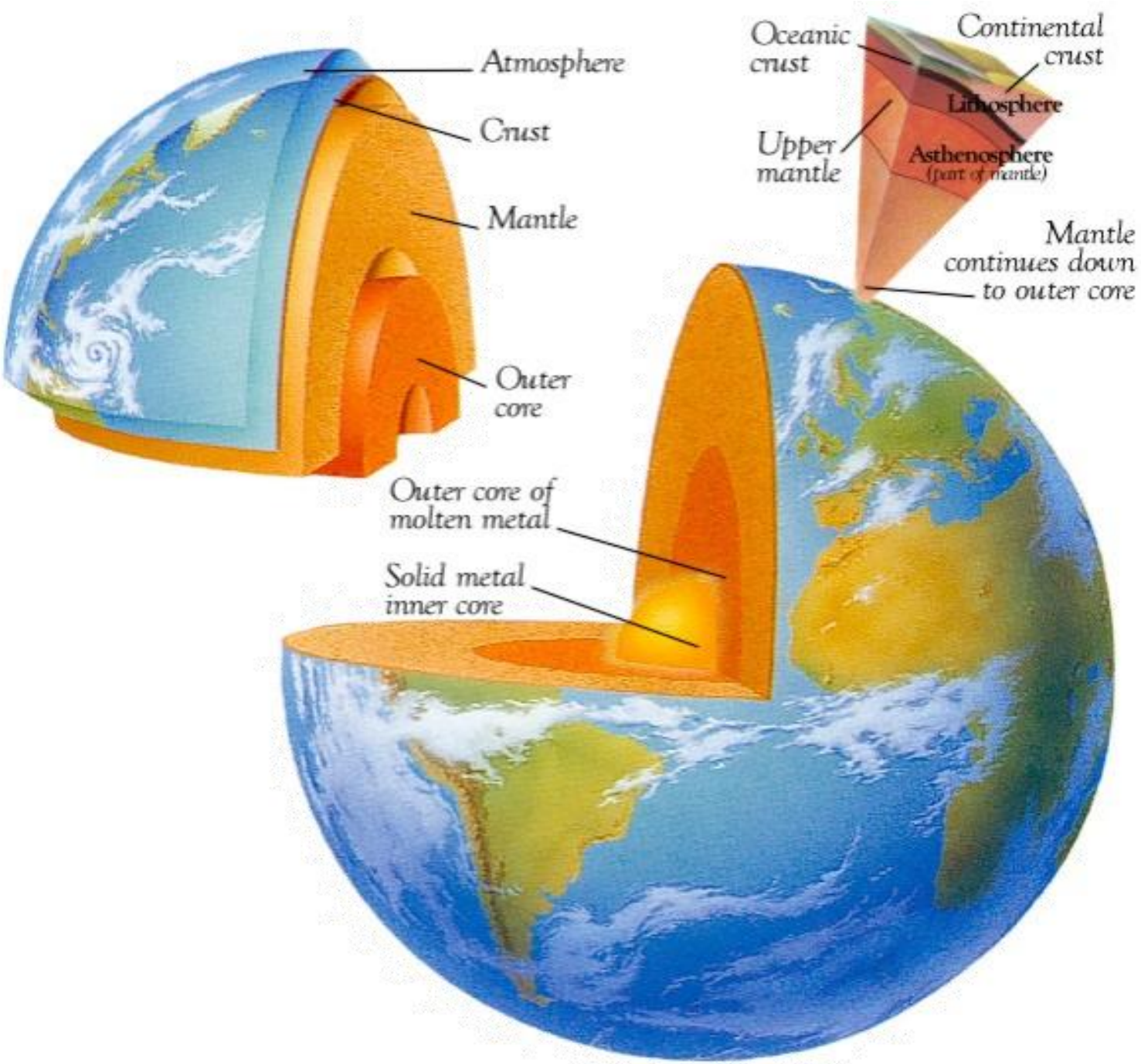
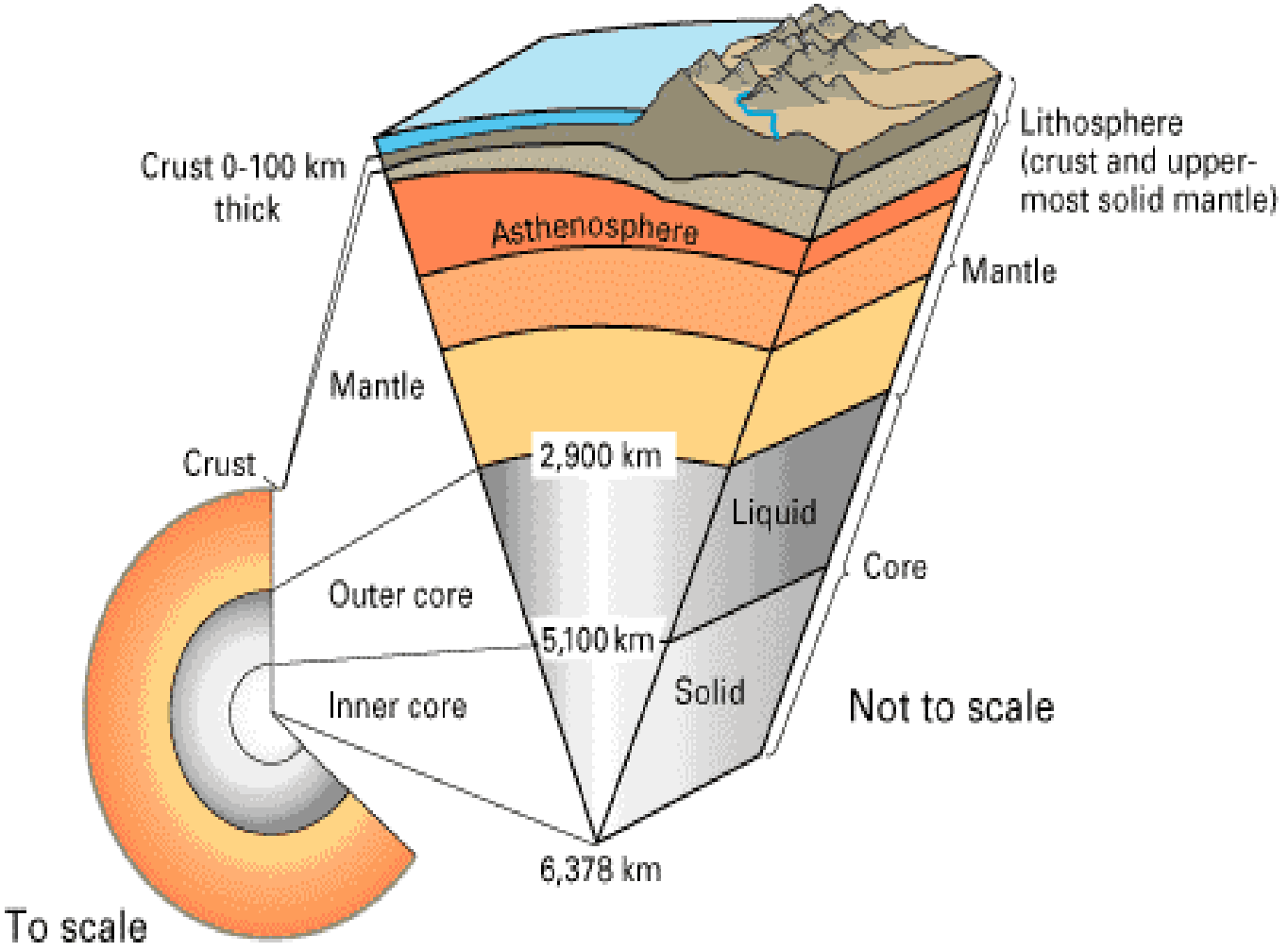
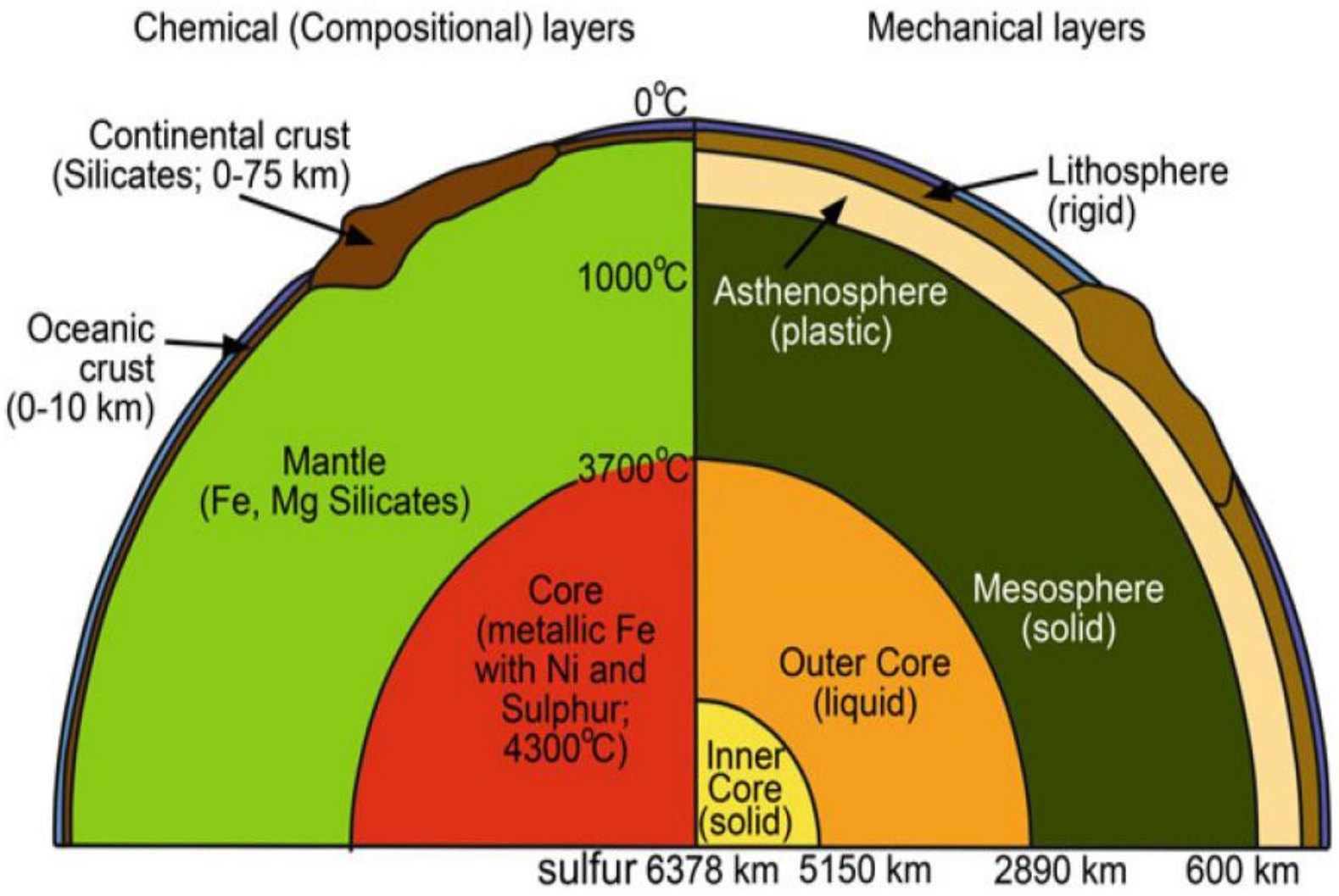
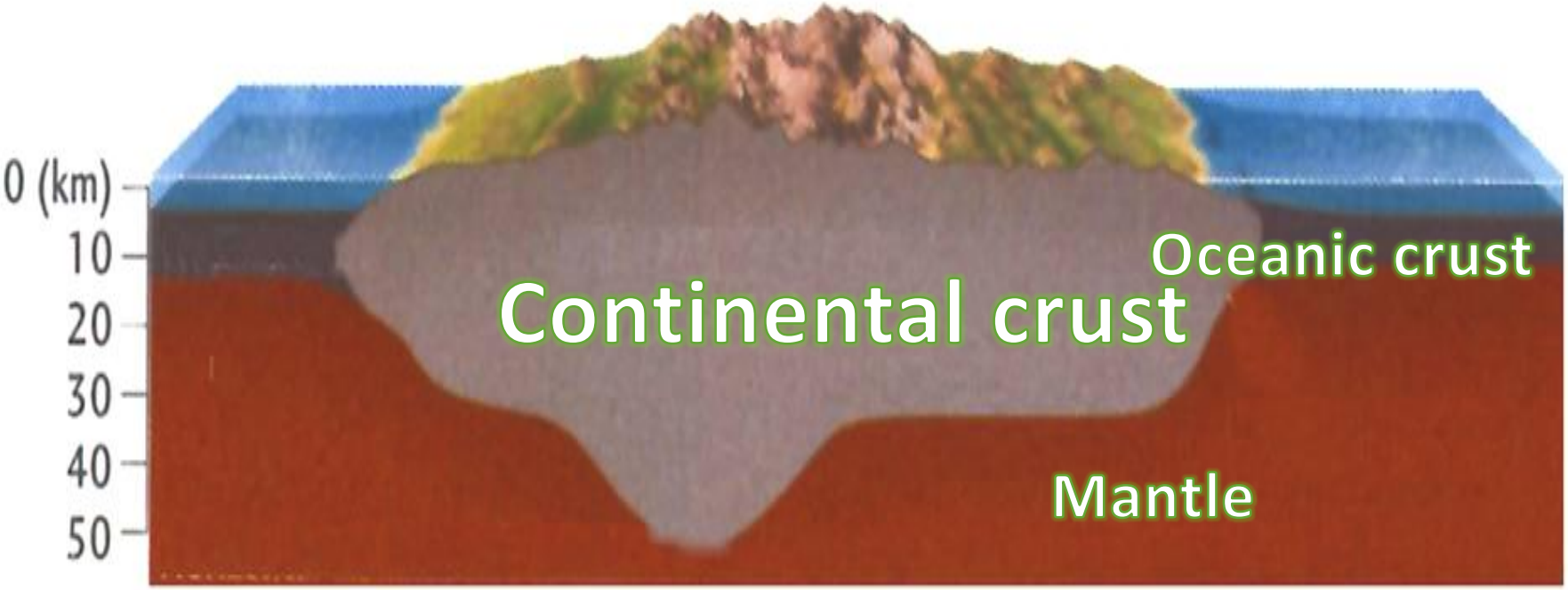
INTERIOR OF THE EARTH


Atmosphere
Crust
Mantle
Outer core
Outer core of molten metal
Solid metal inner core
Oceanic crust
Continental crust
Lithosphere
Upper mantle
Asthenosphere
(part of mantle)
Mantle continues down to outer core

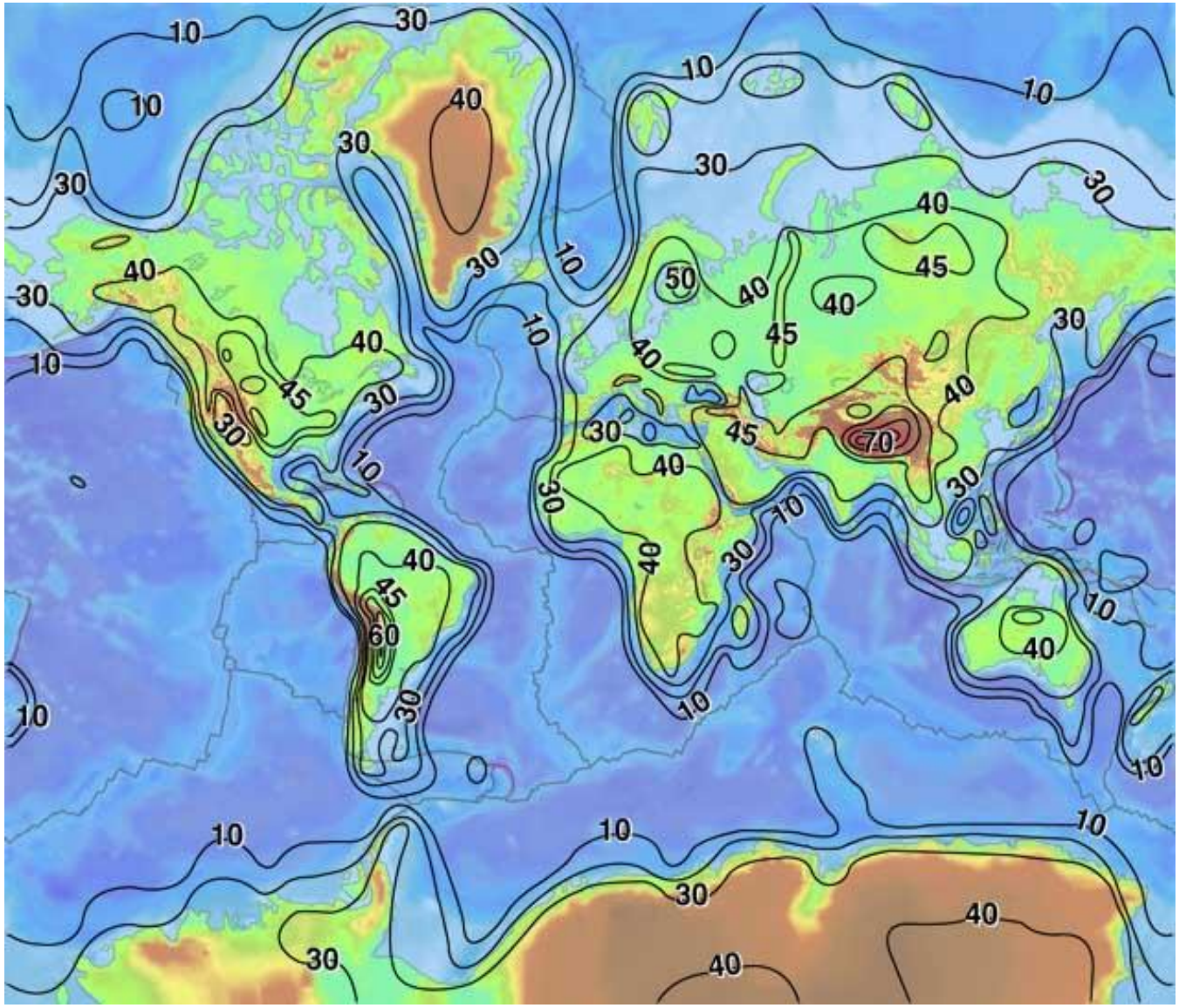
The Layers of the Earth

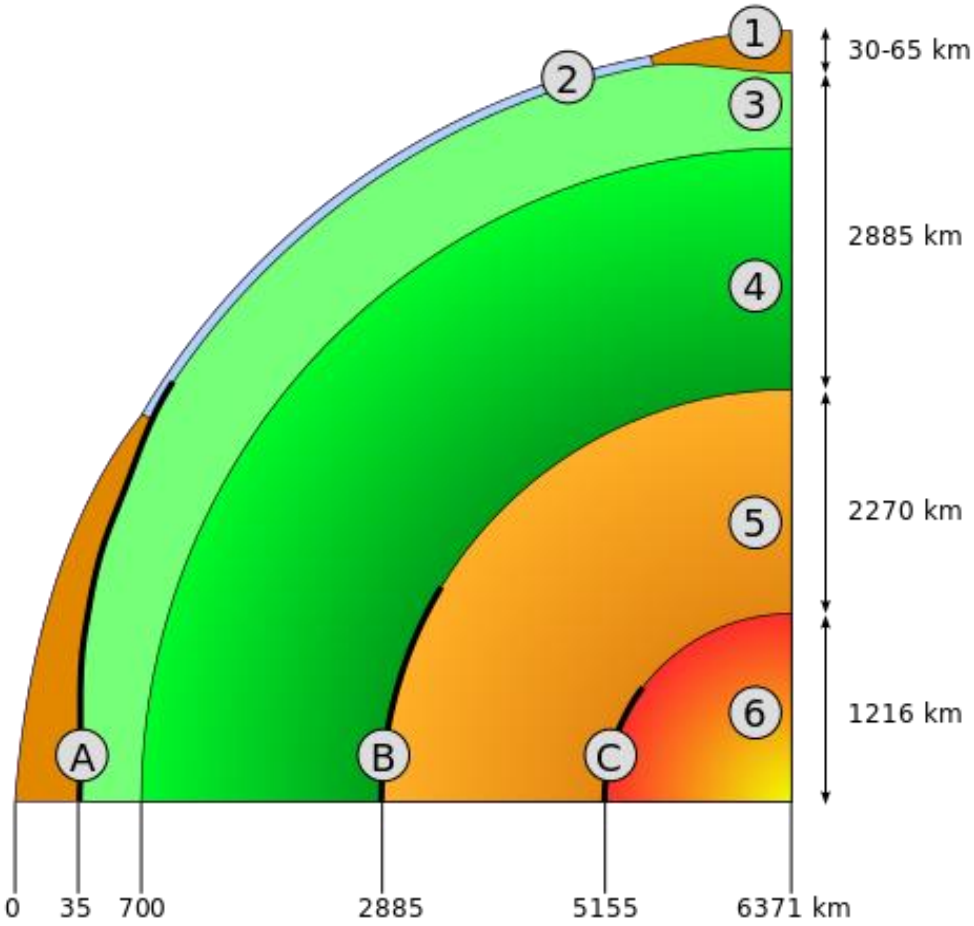



Chemical (Compositional) layers
Mechanical layers
0°C
Continental crust
(Silicates; 0-75 km)
Lithosphere
(rigid)
1000°C
Asthenosphere
(plastic)
Oceanic
crust
(0-10 km)
Mantle
(Fe, Mg Silicates)
3700°C
Core
(metallic Fe
with Ni and
Sulphur;
4300°C)
Mesosphere
(solid)
Outer Core
(liquid)
Inner
Core
(solid)
sulfur 6378 km 5150 km 2890 km 600 km


0 (km)
10
20
30
40
50
Oceanic crust
Continental crust
Mantle

Isopach contour lines: lines of equal thickness of the crust

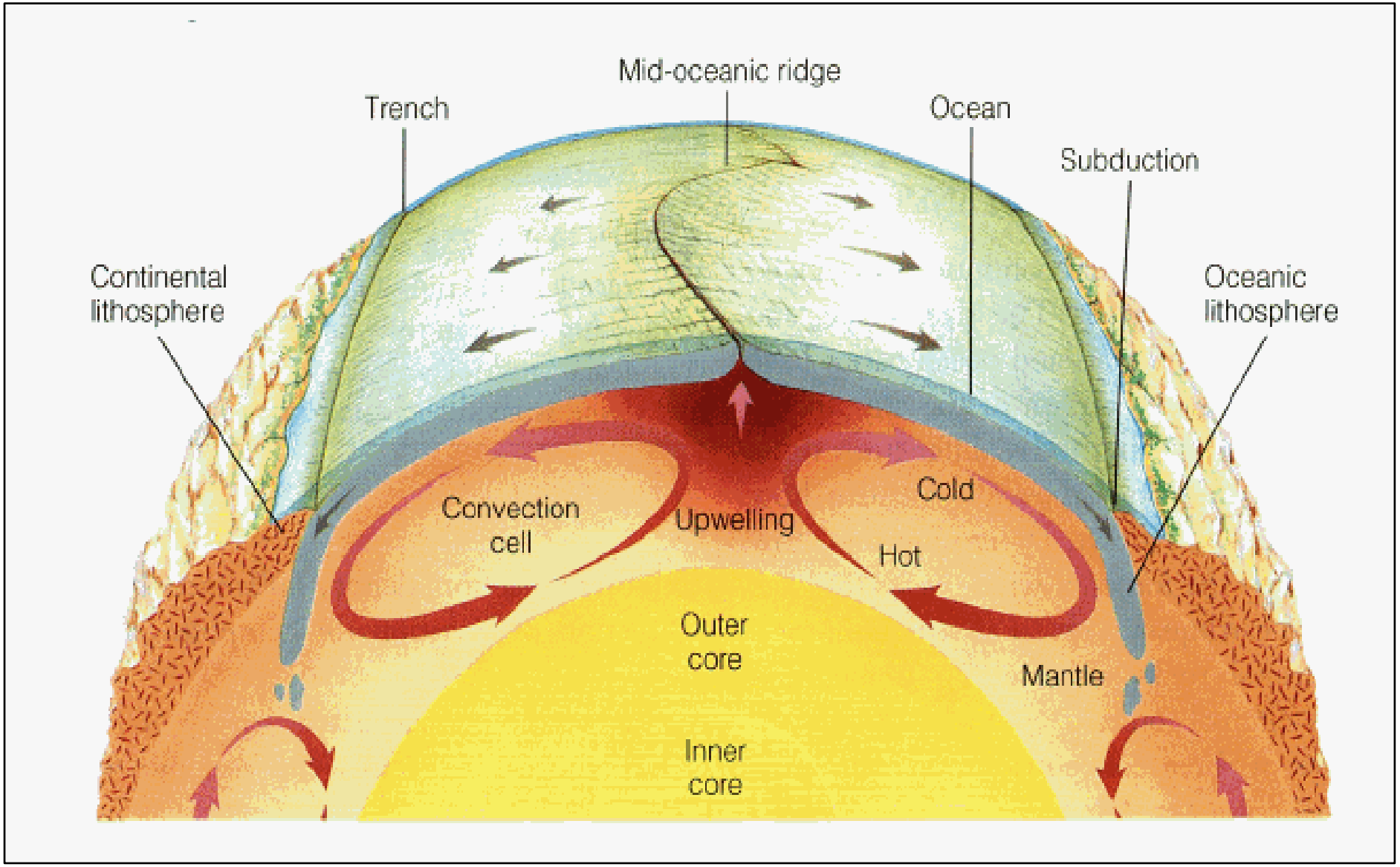


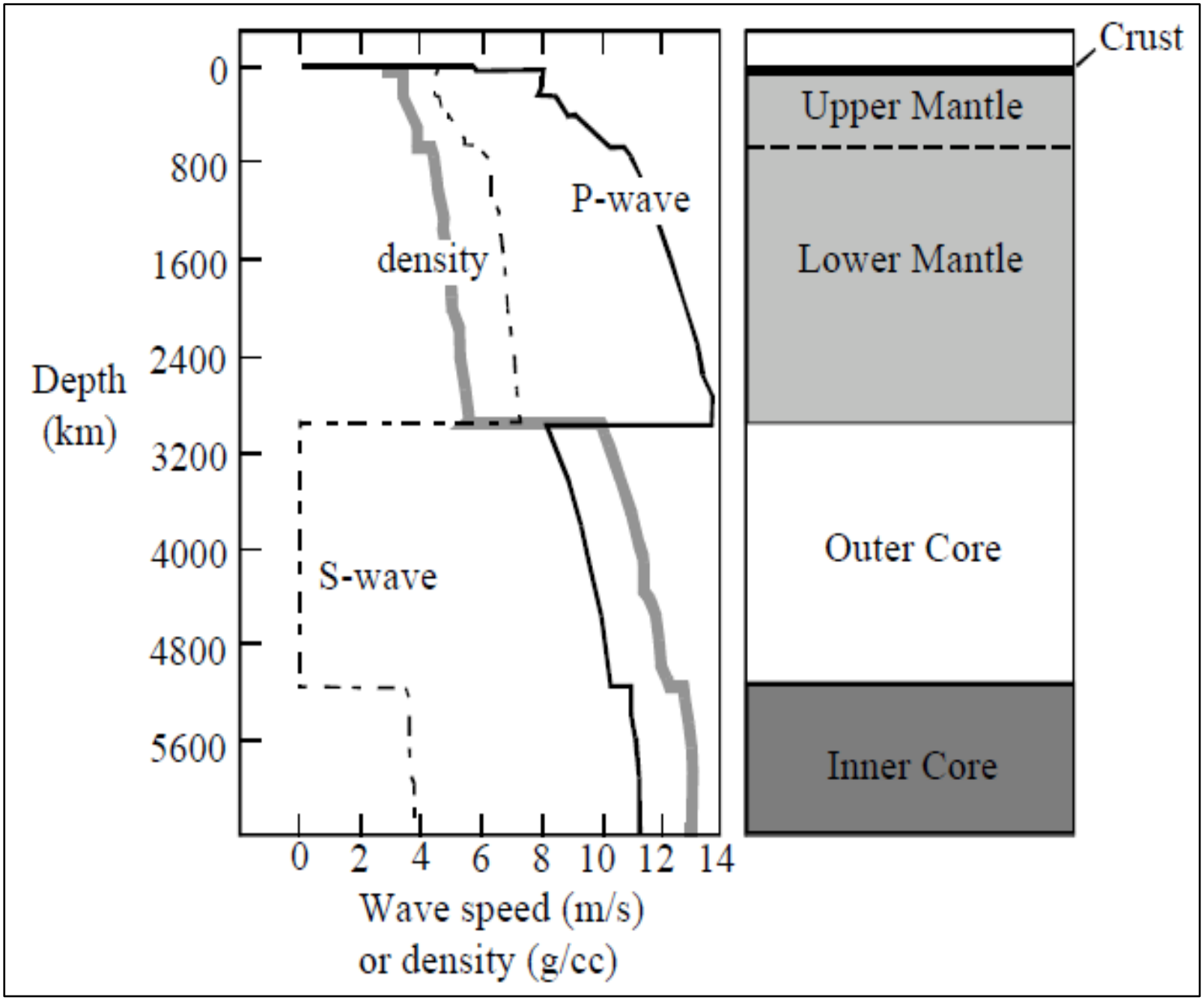


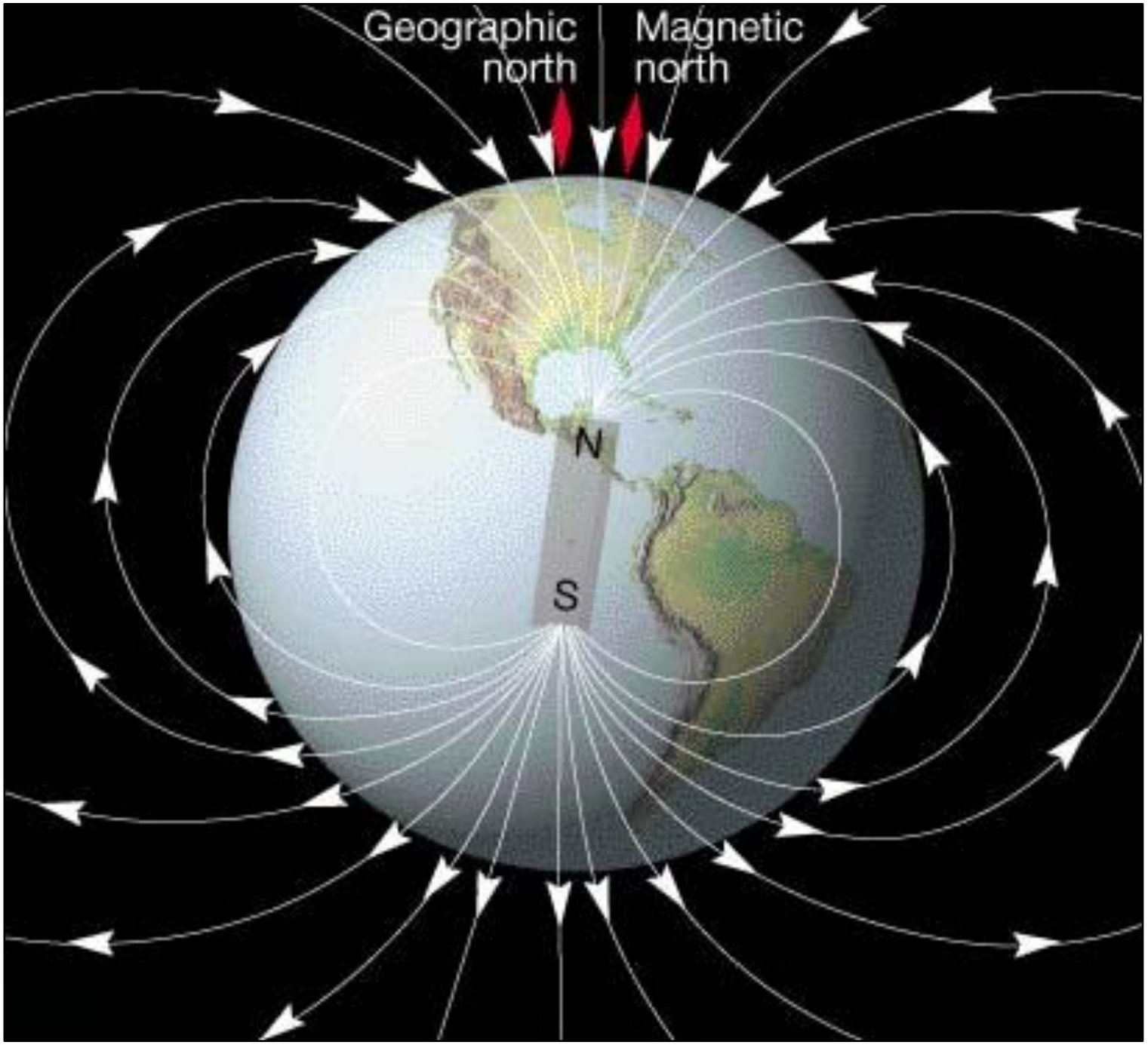
Schematic view of the interior of Earth.

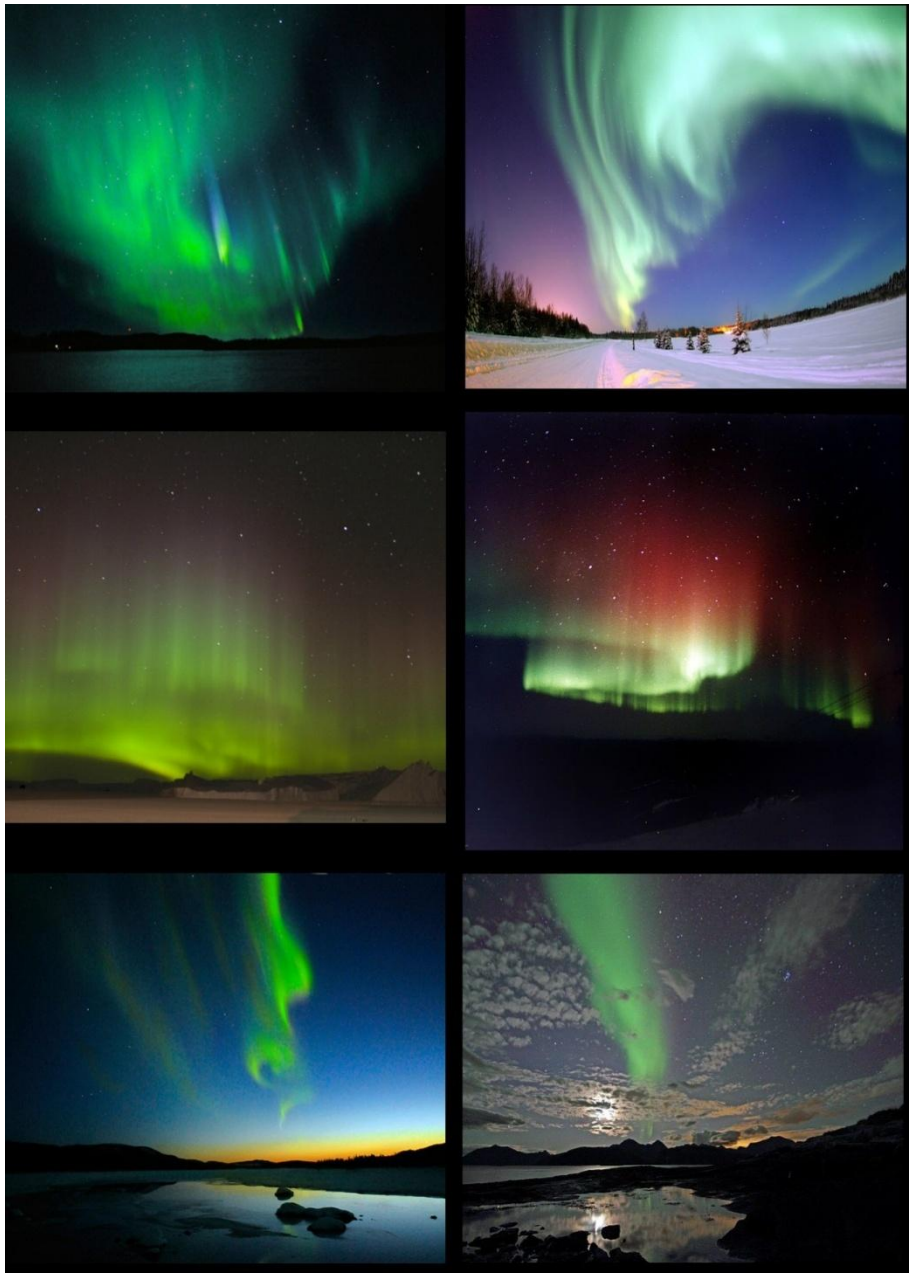
1. **continental crust**
2. **oceanic crust**
3. **upper mantle**
4. **lower mantle**
5. **outer core**
6. **inner core**

A:Mohorovičić discontinuity
B:Gutenberg Discontinuity
C:Lehmann–Bullen discontinuity.

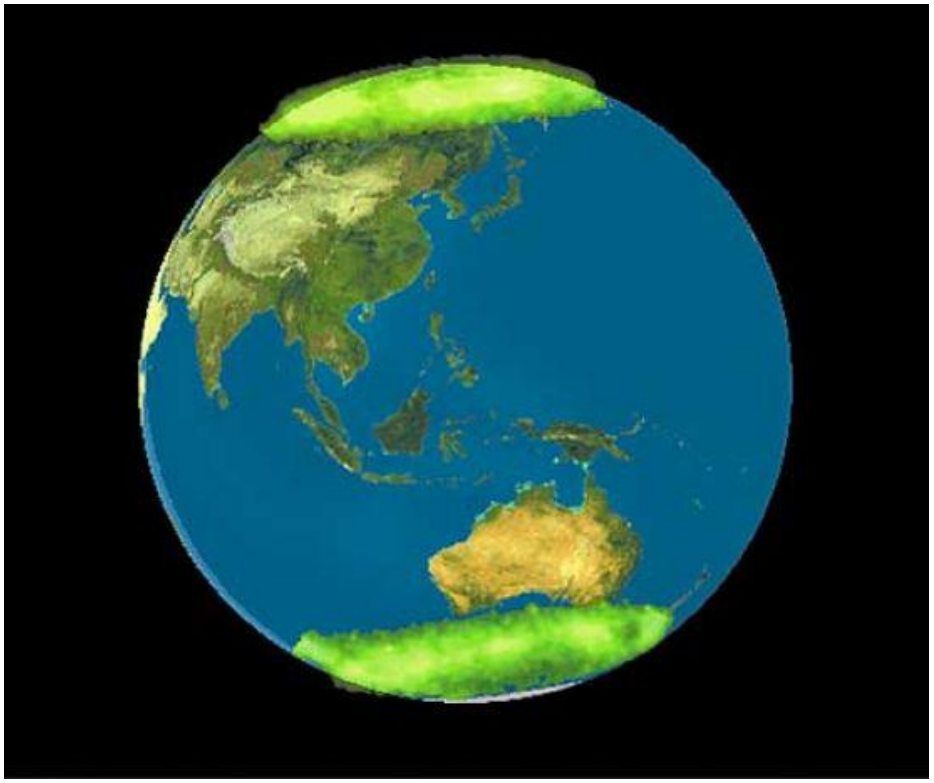

Mid-oceanic ridge
Trench
Ocean
Subduction
Continental lithosphere
Oceanic lithosphere
Convection cell
Upwelling
Cold
Hot
Outer core
Mantle
Inner core


Depth (km)
0
800
1600
2400
3200
4000
4800
5600
P-wave
density
S-wave
0
2
4
6
8
10
12
14
Wave speed (m/s)
or density (g/cc)
Crust
Upper Mantle
Lower Mantle
Outer Core
Inner Core

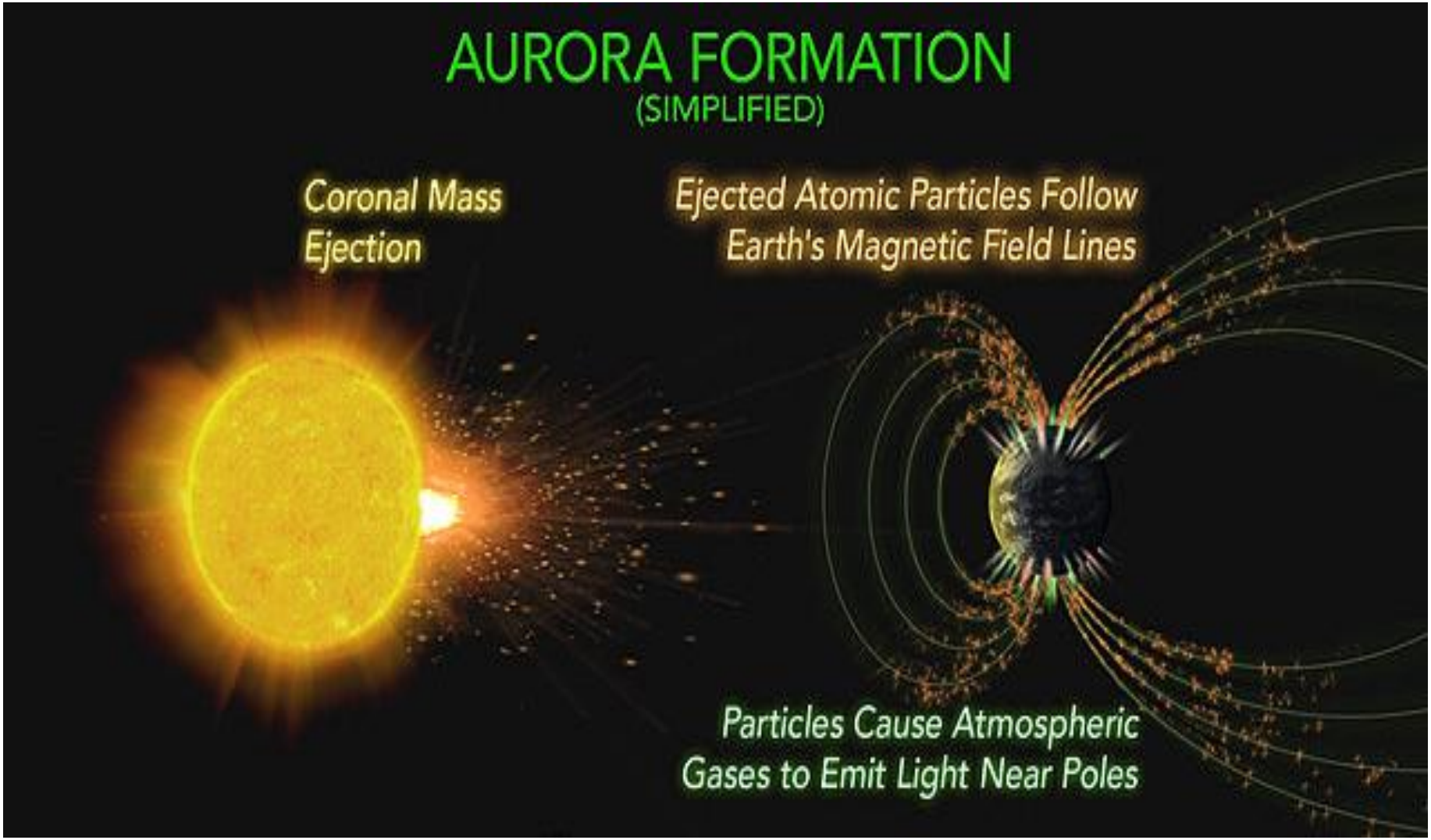

Geographic north
Magnetic north
N
S



AURORA BOREALIS



AURORA AUSTRALIS


AURORA FORMATION
(SIMPLIFIED)
Coronal Mass Ejection
Ejected Atomic Particles Follow Earth's Magnetic Field Lines
Particles Cause Atmospheric Gases to Emit Light Near Poles

COMPOSITION OF THE EARTH

The composition of the Earth

H	260	Zn	40	Pr	0.17
Li	1.1	Ga	3	Nd	0.84
Be	0.05	Ge	7	Sm	0.27
B	0.2	As	1.7	Eu	0.1
C	730	Se	2.7	Gd	0.37
N	25	Br	0.3	Tb	0.067
O %	29.7	Rb	0.4	Dy	0.46
F	10	Sr	13	Ho	0.1
Na %	0.18	Y	2.9	Er	0.3
Mg %	15.4	Zr	7.1	Tm	0.046
Al %	1.59	Nb	0.44	Yb	0.3
Si %	16.1	Mo	1.7	Lu	0.046
P	1210	Ru	1.3	Hf	0.19
S	6350	Rh	0.24	Ta	0.025
Cl	76	Pd	1	W	0.17
K	160	Ag	0.05	Re	0.075
Ca %	1.71	Cd	0.08	Os	0.9
Sc	10.9	In	0.007	Ir	0.9
Ti	810	Sn	0.25	Pt	1.9
V	105	Sb	0.05	Au	0.16
Cr	4700	Te	0.3	Hg	0.02
Mn	1700	I	0.05	Tl	0.012
Fe %	31.9	Cs	0.035	Pb	0.23
Co	880	Ba	4.5	Bi	0.01
Ni	18220	La	0.44	Th	0.055
Cu	60	Ce	1.13	U	0.015

Concentrations are given in μg/g (ppm), unless stated as "%", which are given in weight %.

O % 29.7
F 10
Na % 0.18
Mg % 15.4
Al % 1.59
Si % 16.1
P 1210
S 6350
Cl 76
K 160
Ca % 1.71
Sc 10.9
Ti 810
V 105
Cr 4700
Mn 1700
Fe % 31.9

The composition of the Silicate Earth

H	100	Zn	55	Pr	0.25
Li	1.6	Ga	4	Nd	1.25
Be	-0.07	Ge	1.1	Sm	0.41
B	0.3	As	0.05	Eu	0.15
C	120	Se	0.075	Gd	0.54
N	2	Br	0.05	Tb	0.1
O %	44	Rb	0.6	Dy	0.67
F	15	Sr	20	Ho	0.15
Na %	0.27	Y	4.3	Er	0.44
Mg %	22.8	Zr	10.5	Tm	0.068
Al %	2.35	Nb	0.66	Yb	0.44
Si %	21	Mo	0.05	Lu	0.068
P	90	Ru	0.005	Hf	0.28
S	250	Rh	0.001	Ta	0.037
Cl	17	Pd	0.004	W	0.029
K	240	Ag	0.008	Re	0.0003
Ca %	2.53	Cd	0.04	Os	0.003
Sc	16	In	0.01	Ir	0.003
Ti	1200	Sn	0.13	Pt	0.007
V	82	Sb	0.006	Au	0.001
Cr	2625	Te	0.012	Hg	0.01
Mn	1045	I	0.01	Tl	0.004
Fe %	6.26	Cs	0.021	Pb	0.15
Co	105	Ba	6.6	Bi	0.003
Ni	1960	La	0.65	Th	0.08
Cu	30	Ce	1.68	U	0.02

Concentrations are given in μg/g (ppm), unless stated as "%", which are given in weight %.

The composition of the Core

H	600	Zn	0	Pr	0
Li	0	Ga	0	Nd	0
Be	0	Ge	20	Sm	0
B	0	As	5	Eu	0
C	2000	Se	8	Gd	0
N	75	Br	0.7	Tb	0
O %	0	Rb	0	Dy	0
F	0	Sr	0	Ho	0
Na %	0	Y	0	Er	0
Mg %	0	Zr	0	Tm	0
Al %	0	Nb	0	Yb	0
Si %	6.0	Mo	5	Lu	0
P	3500	Ru	4	Hf	0
S	19000	Rh	0.74	Ta	0
Cl	200	Pd	3.1	W	0.47
K	0	Ag	0.15	Re	0.23
Ca %	0	Cd	0.15	Os	2.8
Sc	0	In	0	Ir	2.6
Ti	0	Sn	0.5	Pt	5.7
V	150	Sb	0.13	Au	0.5
Cr	9000	Te	0.85	Hg	0.05
Mn	3000	I	0.13	Tl	0.03
Fe %	85	Cs	0.065	Pb	0.4
Co	2500	Ba	0	Bi	0.03
Ni	52000	La	0	Th	0
Cu	125	Ce	0	U	0

Concentrations are given in μg/g (ppm), unless stated as "%", which are given in weight %.

Composition of the Earth's Crust