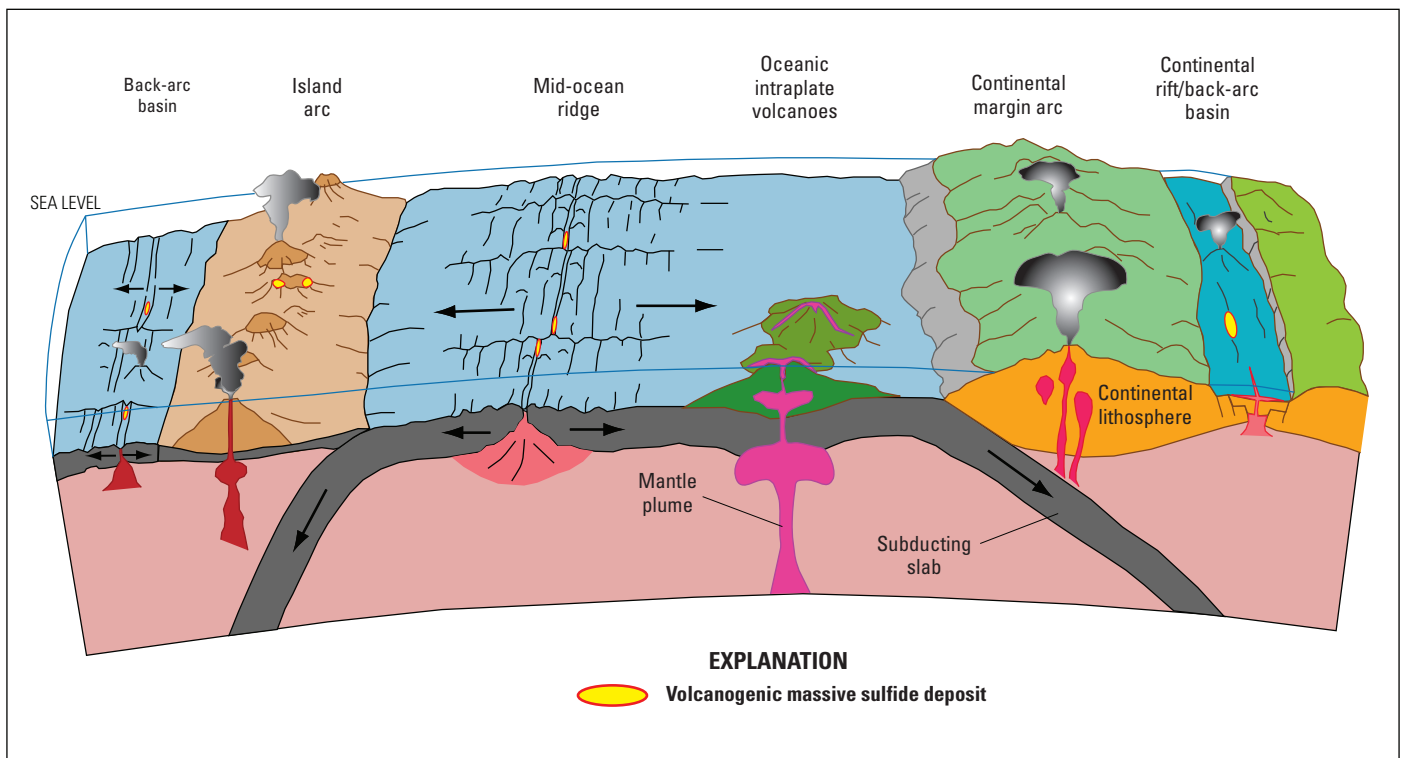


# Volcanogenic Massive Sulfide Occurrence Model



Scientific Investigations Report 2010–5070–C



# **Volcanogenic Massive Sulfide Occurrence Model**

Edited by W.C. Pat Shanks III and Roland Thurston

Scientific Investigations Report 2010–5070–C

**U.S. Department of the Interior**  
**U.S. Geological Survey**

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## Abbreviations Used in This Report

### Units of Measure

°C	degree Celcius	W	watt
μg	microgram	wt%	weight percent
b.y.	billion years (interval of time)	yr	year
Bt	billion metric tons		
cm	centimeter		
E <sub>n</sub>	oxidation/reduction potential		
g	gram		
Ga	giga-annum (age)		
Hz	hertz		
J	joule		
K	kelvin		
ka	kilo-annum (age)		
kg	kilogram		
km	kilometer		
L	liter		
m	meter		
m.y.	million years (interval of time)		
Ma	mega-annum (age)		
mbsf	meters below sea floor		
mg	milligram		
mGal	milligal		
mM	millimolar		
mmol	millimole		
MPa	megapascal		
mPa	millipascal		
mS	millisiemen		
Mt	million metric tons		
nT	nanotesla		
Pa	pascal		
ppm	parts per million		
s	second		
t	ton		
T, temp.	temperature		
vol%	volume percent		

### Elements

Ag	silver	Si	silicon
Al	aluminum	Sn	tin
As	arsenic	Sr	strontium
Au	gold	Ta	tantalum
B	boron	Te	tellurium
Ba	barium	Th	thorium
Be	beryllium	Ti	titanium
Bi	bismuth	Tl	thallium
Br	bromine	U	uranium
C	carbon	V	vanadium
Ca	calcium	W	tungsten
Cd	cadmium	Y	yttrium

Ce	cerium	Yb	ytterbium
Cl	chlorine	Zn	zinc
Co	cobalt	Zr	zirconium
Cr	chromium		
Cs	cesium		
Cu	copper		
Eu	europium		
F	fluorine		
Fe	iron		
Ga	gallium		
Gd	gadolinium		
Ge	germanium		
H	hydrogen		
He	helium		
Hf	hafnium		
Hg	mercury		
In	indium		
K	potassium		
La	lanthanum		
Li	lithium		
Lu	lutetium		
Mg	magnesium		
Mn	manganese		
Mo	molybdenum		
N	nitrogen		
Na	sodium		
Nb	niobium		
Nd	neodymium		
Ni	nickel		
O	oxygen		
Os	osmium		
P	phosphorus		
Pb	lead		
Rb	rubidium		
Re	rhenium		
S	sulfur		
Sb	antimony		
Sc	scandium		
Se	selenium		
Si	silicon		
Sn	tin		
Sr	strontium		
Ta	tantalum		
Te	tellurium		
Th	thorium		
Ti	titanium		
Tl	thallium		
U	uranium		