STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
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https://www.oregon.gov/dogami/

Time-Rock Chart and Correlation of Map Units for Northeast Oregon

2025

DOGAMI Digital Data Series

Oregon Geologic Data Compilation, Release 8 (OGDC-8)

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PLATE 5

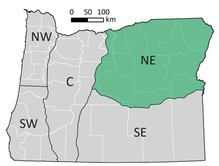
INTRODUCTION

This time-rock chart illustrates the absolute ages, relative stratigraphic relations, and correlations of significant bedrock geologic map units found at the surface and in the subsurface in the Northeast region of the state of Oregon. As defined here, the Northeast region includes the area bounded by the Washington state border on the north, the Idaho state border on the east, U.S. Highway 20 on the south, U.S. Highway 97 on the west, and the Columbia River on the northwest.

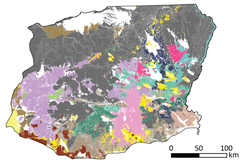
Geologic map units are derived from the statewide Oregon Geologic Data Compilation (OGDC-8) and include formally recognized geologic groups, formations, and members, as well as some informal rock units. Each unit in OGDC-8 is assigned a unique "Compilation Unit Name" and abbreviated "Compilation Unit Label" that combines its higher-order "Terrane/Group" classification (in uppercase letters) with its lower-order formation classification (in lowercase letters). The terms used here for Compilation Unit Name and Terrane/Group are a mixture of formal stratigraphic names, informal stratigraphic names, and—especially for many young volcanic units—geographic names of eruptive centers. Some informal names used here have wide currency and a form (geographic name combined with rank or descriptive term) reserved for formal names; their informal status is denoted by a lowercase rank or descriptive term followed by an asterisk, e.g., Herren formation*.

In the legend, map units are arranged alphabetically by their Compilation Unit Label for ease of reference with the chart. Colors correspond with each unit's Terrane/Group. On the chart, map units are arranged vertically by their age of deposition or emplacement, and horizontally from west to east within the Northeast region; because many units extend laterally over significant portions of the region, their horizontal positions in the chart are relative approximations. Although spatial and lateral stratigraphic relations among units are not easily represented in this format, the main purpose of this chart is to illustrate the absolute age spans and temporal relations among various map units in the Northeast region.

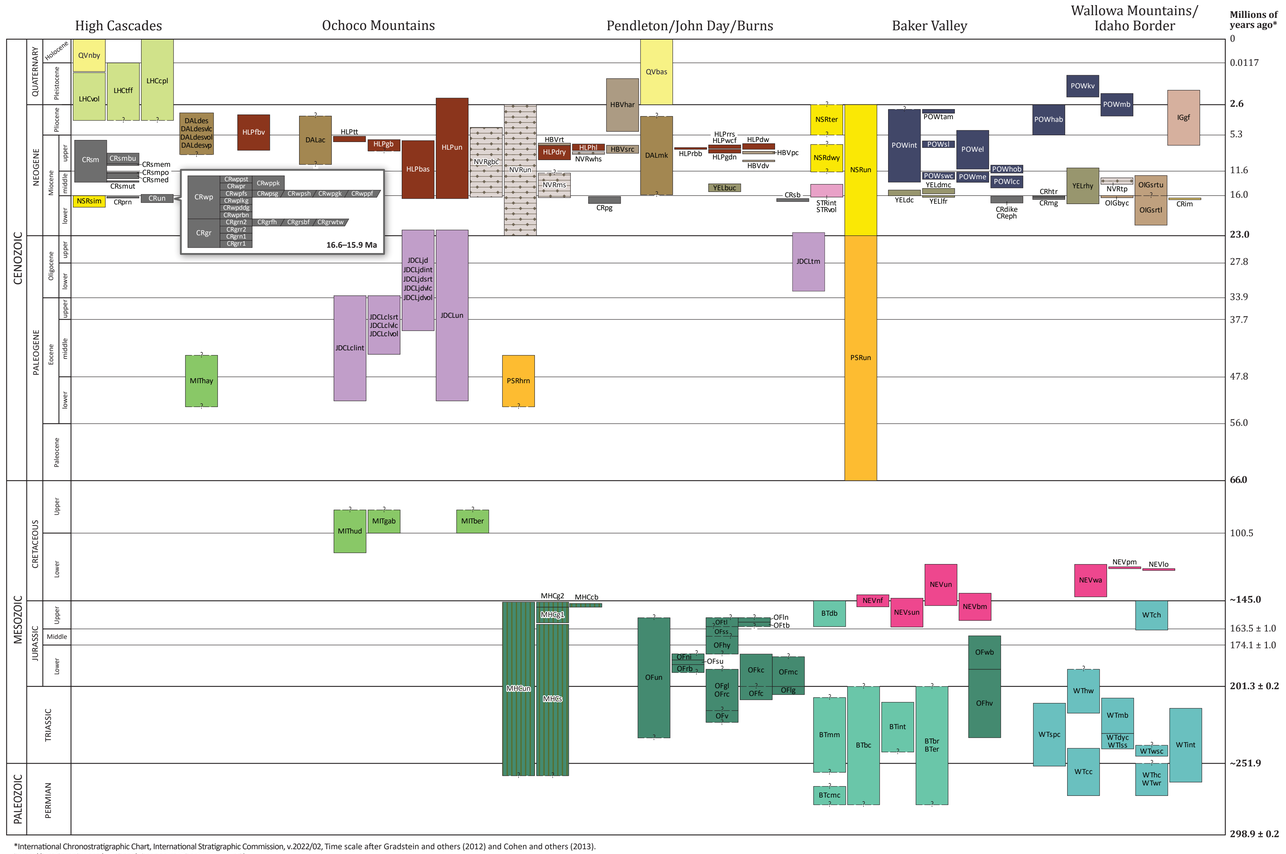
REGION LOCATION MAP



REGIONAL GEOLOGIC MAP



Note that Quaternary surficial deposits shown in white are not included on the time-rock chart below.



*International Chronostratigraphic Chart, International Stratigraphic Commission, v.2022/02, Time scale after Gradstein and others (2012) and Cohen and others (2013). https://stratigraphy.org/ICSchart/ChronostratChart2022-02.pdf

(arranged alphabetically by Compilation Unit Label)

Compilation Unit Label	Compilation Unit Name	Terrane/Group	Bedrock Areal Coverage in Region (%)
BTbc	Badger Creek unit	**Baker terrane**	3.7
BTbr	Burnt River Schist		
BTcmc	Canyon Mountain Complex		
BTdb	Dixie Butte Meta-andesite		
BTer	Elkhorn Ridge Argillite		
BTint	intrusive rocks of Baker Terrane		
BTmm	Miller Mountain melange*		
CRdike	dikes of Columbia River Basalt Group	**Columbia River Basalt Group**	47.7
CReph	early phase of Columbia River Basalt		
CRgr	Grande Ronde Basalt		
CRgrfh	basalt of Fiddlers Hell		
CRgrn1	N1 subunit of Grande Ronde		
CRgrn2	N2 subunit of Grande Ronde		
CRgrr1	R1 subunit of Grande Ronde		
CRgrr2	R2 subunit of Grande Ronde		
CRgrsbf	Sentinel Bluffs Member		
CRgrwtw	Winter Water Member		
CRhtr	Hunter Creek Basalt		
CRim	Imnaha Basalt		
CRmg	basalt of Malheur Gorge		
CRpg	Picture Gorge Basalt		
CRprn	Prineville Basalt		
CRsb	Steens Basalt		
CRsm	Saddle Mountains Basalt		
CRsmbu	Buford Member		
CRsmed	basalt of Eden		
CRsmem	Elephant Mountain Member		
CRsmpo	Pomona Member		
CRsmut	Umatilla Member		
CRun	Columbia River Basalt Group, undivided		
CRwp	Wanapum Basalt		
CRwpddg	basalt of Dodge		
CRwpfs	Frenchman Springs Member		
CRwpgk	basalt of Ginkgo		
CRwplkg	basalt of Lookingglass		
CRwppf	basalt of Palouse Falls		
CRwppk	basalt of Powatka		
CRwppst	Priest Rapids Member		
CRwpr	Roza Member		
CRwprbn	basalt of Robinette Mountain		
CRwpsg	basalt of Sentinel Gap		
CRwpsh	basalt of Sand Hollow		
DALac	Alkali Canyon Formation	**Dalles package**	2.7
DALdes	Deschutes Formation		
DALdesvlc	volcaniclastic rocks of Deschutes Formation		
DALdesvol	volcanic rocks of Deschutes Formation		
DALdesvp	vents of Deschutes Formation		
DALmk	McKay Formation		
HBVdv	Devine Canyon Ashflow Tuff	**Harney Basin volcanic field**	5.4
HBVhar	Harney Formation		
HBVpc	Prater Creek Ashflow Tuff		
HBVrt	Rattlesnake Ashflow Tuff		
HBVsrc	Silvies River caldera		
HLPbas	basalt of High Lava Plains volcanic province	**High Lava Plains volcanic province**	2.3
HLPdry	basalt and andesite of Dry Mountain		
HLPdw	Drinkwater Basalt		
HLPfbv	Frederick Butte volcanic center		
HLPgb	olivine basalt of Gum Boot Canyon		
HLPgdn	soda rhyolite of Golden Ranch		
HLPhl	basalt of Harney Lake		
HLPrbb	rhyodacite of Burns Butte		
HLPrrs	basaltic andesite of Rimrock Springs		
HLPtt	basalt of Twelvemile Table		
HLPun	High Lava Plains volcanic province, undifferentiated		
HLPwcf	basaltic andesite of Willow Creek Flats		
IGgf	Glenns Ferry Formation	**Idaho Group**	2.2
JDCLcllint	intrusive rocks of Clarno Formation	**John Day/ Clarno package**	12.9
JDCLclsrt	sedimentary rocks of Clarno Formation		
JDCLclvlc	volcaniclastic rocks of Clarno Formation		
JDCLclvol	volcanic rocks of Clarno Formation		
JDCLjd	John Day Formation		
JDCLjdint	intrusive rocks of John Day Formation		
JDCLjdsrt	sedimentary rocks of John Day Formation		
JDCLjdvlc	volcaniclastic rocks of John Day Formation		
JDCLjdvol	volcanic rocks of John Day Formation		
JDCLtm	volcanic rocks of Tower Mountain		
JDCLun	John Day-Clarno package, undivided		
LHCcpl	lavas of Cascade platform	**late High Cascade Volcanics**	< 0.1
LHCtff	tuffs of late High Cascade Volcanics		
LHCvol	lavas of late High Cascade Volcanics		

(arranged alphabetically by Compilation Unit Label)

Compilation Unit Label	Compilation Unit Name	Terrane/Group	Bedrock Areal Coverage in Region (%)
MfTber	Bernard Formation	**Mitchell package**	< 0.1
MfTgab	Gable Creek Formation		
MfThay	Hay Creek Formation		
MfThud	Hudspeth Formation		
MHCg1	Mountain Home complex* Group 4, deformed	**Mountain Home complex***	0.2
MHCs	schist of Willow Jacket Road and keratophyre		
MHCcb	Carney Butte stock		
MHCg2	Mountain Home complex* Group 5, undeformed		
MHRun	Mountain Home complex*, undivided		
NSRdwy	Drewsey Formation	**Neogene sedimentary rocks**	3.7
NSRsim	Simtustus Formation		
NSRter	Neogene terrace deposits		
NSRun	Neogene sedimentary rocks, undifferentiated		
NVRgb	"volcanic complex of Glass Butte"	**Neogene volcanic rocks**	<1
NVRms	Mascall Formation		
NVRtp	Tims Peak Basalt		
NVRun	"Neogene volcanic rocks, undifferentiated"		
NVRwhs	Tuff of Wheeler Springs		
NEVbm	Bald Mountain Batholith	**Nevadan intrusions**	2.0
NEVun	Nevadan intrusions, undifferentiated		
NEVlo	Lookout Mountain pluton		
NEVnf	North Fork stock		
NEVpm	Pedro Mountain stock		
NEVsun	Sunrise Butte stock		
NEVwa	Wallowa Batholith		
OFfc	Fields Creek Formation	**Olds Ferry terrane**	3.5
OFgl	Graylock Formation		
OFhv	Huntington Formation		
OFhy	Hyde Formation		
OFkc	Keller Creek Shale		
OFlg	Laycock Graywacke		
OFln	Lonesome Formation		
OFmc	Murderers Creek Formation		
OFni	Nicely Formation		
OFrb	Robertson Formation		
OFrc	Rail Cabin Argillite		
OFss	Snowshoe Formation		
OFsu	Supplee Formation		
OFtb	Trowbridge Formation		
OFtl	Trowbridge and Lonesome Formations, undivided		
OFun	Olds Ferry Terrane, undivided		
OFv	Vester Formation		
OFwb	Weatherby Formation		
OlGbyc	Bully Creek Formation	**Oregon-Idaho graben**	0.3
OlGsrtl	lower sedimentary rocks of Oregon-Idaho graben		
OlGsrtu	upper sedimentary rocks of Oregon-Idaho graben		
PSRhrn	Herren formation*	**Paleogene sedimentary rocks**	0.2
PSRun	Paleogene sedimentary rocks, undifferentiated		
POWel	trachyandesite of Elgin	**Powder River volcanic field**	3.0
POWhab	basalt of Harper Basin		
POWhob	basanite of Horseshoe Basin		
POWint	intrusive rocks of Powder River volcanic field		
POWkv	Kiwett volcanics*		
POWlcc	basalt of Litte Catherine Creek		
POWmb	volcanic rocks of Malheur Butte		
POWme	dacite of Mount Emily		
POWsl	alkali basalt of Sugarloaf		
POWswc	andesite of Sawtooth Crater		
POWtam	andesite of Tamarack Butte		
QVbas	Quaternary basalt	**Quaternary volcanics**	1.0
QVnby	Newberry Volcano		
STRint	intrusive rocks of Strawberry Volcanics	**Strawberry Volcanics**	5.0
STRvol	Strawberry Volcanics, undifferentiated		
WTcc	Clover Creek Greenstone	**Wallowa terrane**	2.0
WTch	Coon Hollow Formation		
WTdyc	Doyle Creek Formation		
WThc	Hunsaker Creek Formation		
WThw	Hurwal Formation		
WTint	intrusive rocks of Wallowa Terrane		
WTlss	lower sedimentary series of Wallowa terrane		
WTmb	Martin Bridge Formation		
WTspc	Sparta complex*		
WTwr	Windy Ridge Formation		
WTwsc	Wild Sheep Creek Formation		
YELbuc	Buchanan ashflow tuff*	**silicic rocks of Yellowstone hotspot**	1.0
YELdc	Dinner Creek Ashflow Tuff		
YELdmc	Dooley Mountain complex*		
YELrhy	rhyolite of Yellowstone hotspot		
YELlfr	Littlefield Rhyolite		

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