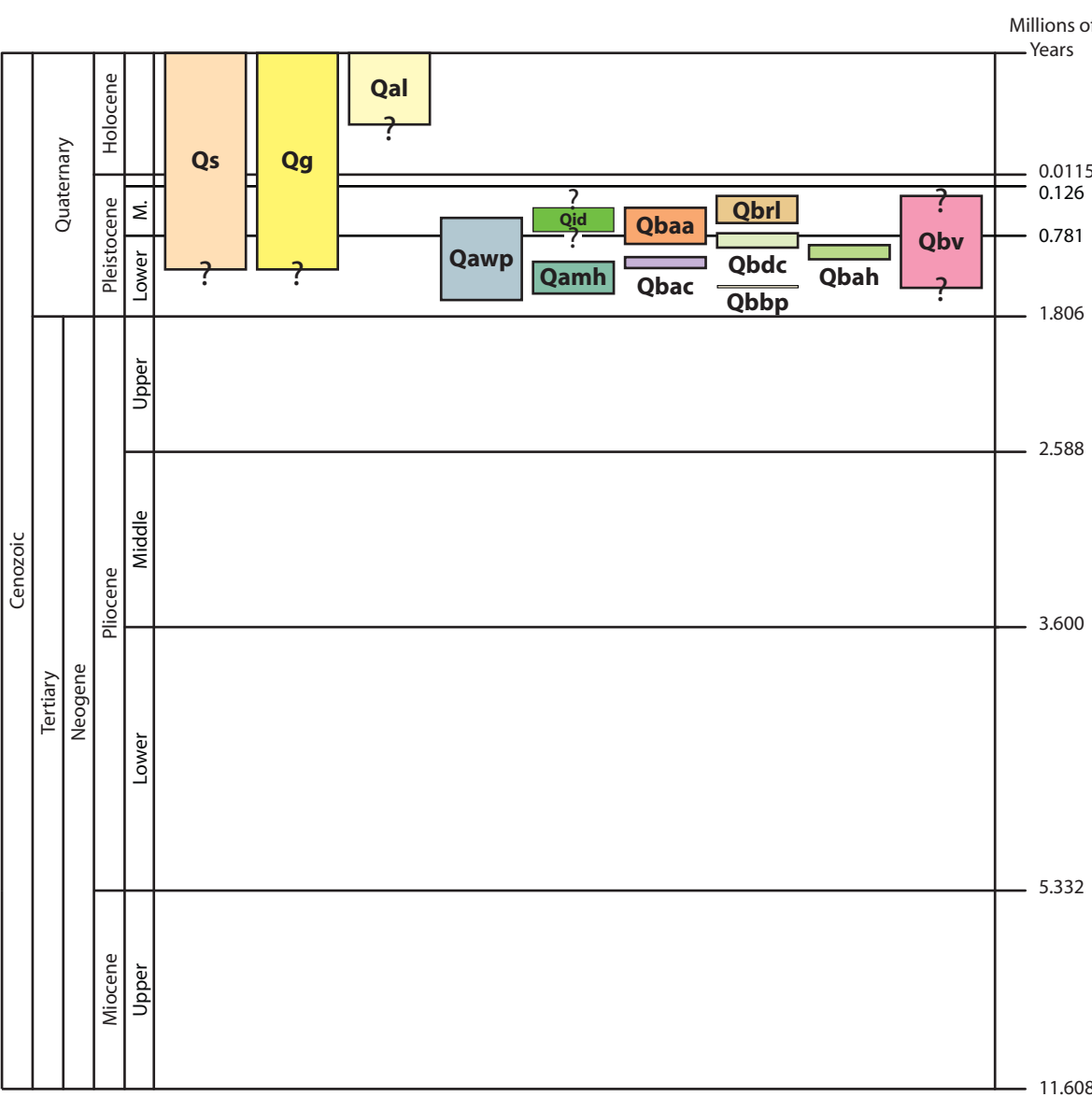


2007

Preliminary Geologic Map of the Aspen Lake 7.5' Quadrangle

By S. A. Mertzman and others

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MAP UNITS

(A full description of the geologic units is found in the accompanying text)






Surficial Units

- | | |
|------------|---|
| Qal | Alluvium
(Holocene) |
| Qg | Undifferentiated colluvium and alluvium
(Holocene and Pleistocene) |
| Qs | Lacustrine deposits
(Holocene and Pleistocene) |

Volcanic Units

- | | |
|-------------|---|
| Qbv | Basaltic to basaltic andesite vent deposits (Pleistocene) |
| Qbrl | Basalt of Round Lake (Middle Pleistocene) |
| Qbdc | Basalt of Denny Creek (Lower to Middle Pleistocene) |
| Qbaa | Basaltic Andesite of Aspen Butte (Lower to Middle Pleistocene) |
| Qbah | Basaltic Andesite of High Knob (Lower Pleistocene) |
| Qbac | Basaltic Andesite of Clover Butte (Lower Pleistocene) |
| Qbbp | Basalt of Buck Peak (Lower Pleistocene) |
| Qamh | Andesite of Mount Harriman (Lower Pleistocene) |
| Qawp | Andesite of Whiteface Peak (Lower to Middle Pleistocene) |
| Qld | Diorite conduit-forming intrusive rocks of the Aspen Butte composite volcano (Middle Pleistocene) |

GEOLOGIC MAP SYMBOLS

- | | |
|---|--|
|  | Contact -- Approximately located. |
|  | Fault -- Dashed where concealed and location has been inferred; bars are on the side of the down-dropped block. |
|  | Sample location and map number for specimens with available age dates and chemical analyses -- Consult Table 1 in the attached text. |
|  | Sample location and map number for specimens with available chemical analyses -- Consult Table 1 in the attached text. |
|  | Epicenter' locations and magnitudes of two earthquakes on September 20, 1993 (local time), often called the Klamath Falls Earthquakes. These are the largest earthquakes that have occurred in inland Oregon in recorded history (The Pacific Northwest Seismic Network, 2002; The Pacific Northwest Seismic Network, 2003; and U.S. Department of the Interior and U.S. Geological Survey, 2007). |

MAP SCALE: 1:24,000

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Field Work: 1991, 1992, 1994, 1995, 1998, 1999, 2005

Although the long N-S fault trace on the Aspen Lake Quadrangle map is very close to the two epicenters displayed, these earthquakes actually originated on a deeper fault at ~10 km depth, perhaps on the fault that intersects the ground surface further to the west in the Lake of the Woods South Quadrangle.

NOTES REGARDING THE MAP:

The above map was created in and exported from MapInfo Professional® version 7.0 in the following projection: Universal Transverse Mercator (NAD 27 for US); UTM Zone 10 (NAD 27 for US). The U.S. Geological Survey 7.5 Minute Aspen Lake quadrangle, the colored geologic units, the geologic unit boundaries, and the sample location symbols were exported from MapInfo and have since been kept in the same orientation. The exported map image has been uniformly resized using Adobe® Illustrator® CS3 to create a 1,240,000 scale. The colors of the exported map were adjusted using Adobe® Photoshop® CS3 to be consistent with USGS CMYK color standards. The map numbers; geologic unit labels; and earthquake epicenter symbols and magnitudes were added to the map in Adobe® Illustrator® CS3. A final .pdf version of the map was created using Adobe® Illustrator® CS3.

REFERENCES

The Pacific Northwest Seismic Network. (2002, July 18). *Notable Pacific Northwest Earthquakes Since 1993 (Most Recent First)*. Retrieved October 23, 2007, from http://www.ess.washington.edu/SEIS/EQ_Special/pnwtelectonics.html.

The Pacific Northwest Seismic Network. (2003, March 27). *List of magnitude 4.0 or larger earthquakes in Washington and Oregon*. Retrieved October 23, 2007, from http://www.ess.washington.edu/SEIS/PNSN/HIST_CAT/catalog.html.

U.S. Department of the Interior and U.S. Geological Survey. (2007, January 17). *Largest Earthquakes by State*. Retrieved October 23, 2007, from http://earthquake.usgs.gov/regional/states/state_largest.php.