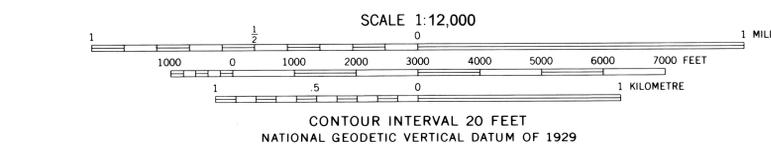
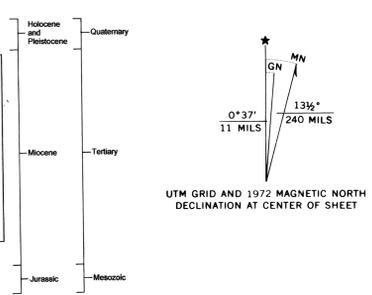


- DESCRIPTION OF MAP UNITS**
- Qal** UNDIVIDED ALLUVIUM—Red to orange, poorly to unconsolidated silt and sand located on Wood Chop Mesa and in adjacent valleys.
 - Qls** LANDSLIDE DEPOSIT—Undivided landslide blocks and slumps
 - Tc** UNDIVIDED CRATER SEDIMENTARY ROCKS—Tan to white mudrock and tuffaceous with variable amounts of pyroclasts and interbeds of mafic tuff, located in vent zones and generally form circular outcrops with inward-dipping beds; locally show intense soft-sediment deformation, locally gypsiferous
 - MAFIC VOLCANIC ROCKS OF WOOD CHOP MESA**—Various porphyritic volcanic rocks including lava, scoria, and palagonitic tuff. Map units consist of lava and pyroclastic deposits from 19 separately mapped vents; source vent for each unit is denoted by numerical subscript (1-19), described by Vazquez (1998)
 - VENT 19**—Porphyritic basaltic containing olivine and clinopyroxene phenocrysts. Divided into three parts:
 - Th19** Lava
 - Ts19** Scoriaeous tuff
 - Th19** Palagonitic tuff
 - VENT 18**—Porphyritic basaltic containing olivine and clinopyroxene phenocrysts with minor amounts of glomerocrysts. Divided into three parts:
 - Th18** Lava
 - Ts18** Scoriaeous tuff
 - Th18** Palagonitic tuff
 - VENT 17**—Porphyritic basaltic containing olivine and clinopyroxene phenocrysts. Divided into two parts:
 - Th17** Lava
 - Ts17** Scoriaeous tuff
 - Th17** Palagonitic tuff
 - VENT 16**—Slightly porphyritic basaltic containing olivine and clinopyroxene phenocrysts. Divided into two parts:
 - Th16** Lava
 - Ts16** Welded scoriaeous tuff
 - VENT 15**—Palagonitic tuff containing juvenile pyroclasts of basaltic with olivine and clinopyroxene phenocrysts; lava-mantled clinopyroxene xenoliths containing kaersutite and phlogopite
 - VENT 14**—Porphyritic basaltic containing olivine phenocrysts and radiating clinopyroxene glomerocrysts. Divided into three parts:
 - Th14** Lava; multiple stacked flow units
 - Ts14** Scoriaeous tuff
 - Th14** Palagonitic tuff
 - VENT 13**—Mixed pyroclastic deposits of porphyritic basaltic containing olivine and clinopyroxene phenocrysts; strongly clinopyroxene-phyric with abundant kaersutite megacrysts near top of bedded deposits; single crystal ⁴⁰Ar/³⁹Ar age on kaersutite of 6.81 ± 0.06 Ma
 - VENT 12**—Slightly porphyritic basaltic containing olivine and clinopyroxene phenocrysts. Divided into two parts:
 - Th12** Palagonitic tuff
 - Ts12** Scoriaeous tuff
 - VENT 11**—Slightly porphyritic monzonite containing olivine, clinopyroxene, and phlogopite phenocrysts. Divided into three parts:
 - Th11** Lava
 - Ts11** Scoriaeous tuff
 - Th11** Palagonitic tuff
 - VENT 10**—Porphyritic basaltic lava containing phenocrysts of clinopyroxene and abundant olivine
 - Th10** VENT 9—Porphyritic basaltic lava containing olivine and clinopyroxene phenocrysts
 - VENT 8**—Porphyritic basaltic containing olivine and clinopyroxene phenocrysts; xenoliths of crystalline metamorphic rocks, clinopyroxene, wadswaterite, and thersolite occur in near-vent lava. Divided into three parts:
 - Th8** Lava; two separate flow lobes east and west of the vent; ⁴⁰Ar/³⁹Ar ages, 6.90 ± 0.75 Ma and 6.93 ± 0.50 Ma
 - Ts8** Scoriaeous tuff
 - Th8** Palagonitic tuff
 - VENT 7**—Palagonitic tuff with juvenile pyroclasts of porphyritic monzonite containing olivine, clinopyroxene, and phlogopite phenocrysts. Includes interbeds of crystal tuff
 - VENT 6**—Porphyritic monzonite containing olivine, clinopyroxene, and phlogopite phenocrysts. Divided into two parts:
 - Ts6** Scoriaeous tuff
 - Th6** Palagonitic tuff
 - VENT 5**—Porphyritic monzonite containing olivine, clinopyroxene, and phlogopite phenocrysts. Divided into three parts:
 - Th5** Lava flows, composed of multiple flow units
 - Ts5** Scoriaeous tuff
 - Th5** Palagonitic tuff
 - VENT 4**—Palagonitic tuff with juvenile pyroclasts of strongly porphyritic monzonite containing phenocrysts and glomerocrysts of clinopyroxene, and phenocrysts of phlogopite and olivine
 - VENT 3**—Glassy basaltic lava containing olivine and clinopyroxene phenocrysts. Where in contact with mudstone, lava is peperitic
 - Th3** VENT 2—Palagonitic tuff containing juvenile pyroclasts of basaltic with olivine and clinopyroxene phenocrysts
 - VENT 1**—Porphyritic basaltic containing clinopyroxene and olivine phenocrysts; oldest mafic volcanic unit. Divided into three parts:
 - Th1** Lava; ⁴⁰Ar/³⁹Ar age, 7.21 ± 0.45 Ma
 - Ts1** Scoriaeous tuff
 - Th1** Palagonitic tuff containing abundant red mudstone xenoliths
 - Tumb** UNDIVIDED MIDDLE MEMBER OF BIDAHOCHI FORMATION—Includes interbedded mafic tuff, which do not originate from Wood Chop Mesa vents, and tuffaceous to epiclastic sedimentary rocks. Occurs as thin beds in the stratigraphy of Wood Chop Mesa and as thin beds between volcanic units from vents 1-19
 - Tl** LOWER MEMBER OF BIDAHOCHI FORMATION—Light-colored beds of mudstone and claystone containing interbeds of siliceous ash tuff; laterally continuous beds traceable throughout map area; exposed along the cliffs around Wood Chop Mesa; includes tephra dated at 13.71 ± 0.08 Ma (Dallage et al., 1998)
 - Jw** WINGATE FORMATION Orange sandstone with white mottling; medium-grained with local large-scale cross-bedding; exposed in the western part of the map area

CORRELATION OF MAP UNITS
Correlation of units in the columns are based on field relations and are well established. Asterisk denotes map units that have ⁴⁰Ar/³⁹Ar ages. Ages are given in the unit description and on the map at sample localities.

Th19	Ts19	Th19	Th18	Ts18	Th18	Th17	Ts17	Th17	Th16	Ts16	Th16	Th15	Ts15	Th15	Th14	Ts14	Th14	Th13	Ts13	Th13	Th12	Ts12	Th12	Th11	Ts11	Th11	Th10	Ts10	Th10	Th9	Ts9	Th9	Th8	Ts8	Th8	Th7	Ts7	Th7	Th6	Ts6	Th6	Th5	Ts5	Th5	Th4	Ts4	Th4	Th3	Ts3	Th3	Th2	Ts2	Th2	Th1	Ts1	Th1	Th0	Ts0	Th0
												Tumb												Tc																																			



Map of the Volcanic Geology of the Wood Chop Mesa Area, Hopi Buttes (Tsezhin Bii'), Navajo Nation, Arizona
By Jorge A. Vazquez 1999



ARIZONA GEOLOGICAL SURVEY
Contributed Map CM-99-A
(sheet 1 of 1, no text)
March 1999

References
Dallage, T.A., Ort, M.H., and McIntosh, W.C., 1988. Correlation and chronology of the lower units of the Mio-Pliocene Bidahochi Formation, Navajo and Hopi Nations, northeastern Arizona [abstract]. GSA Abstracts with Programs, v. 30, no. 6, p. 7.
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