UTAH GEOLOGICAL SURVEY
a division of
Utah Department of Natural Resources
in cooperation with
Bryce Canyon Association
and **National Park Service**

Plate 5
Utah Geological Survey Special Study 178
Bryce Canyon National Park Geologic-Hazard Study Area

SURFACE FAULT RUPTURE HAZARD BRYCE CANYON NATIONAL PARK AND VICINITY GARFIELD AND KANE COUNTIES, UTAH

by

Tyler R. Knudsen

2026

EXPLANATION

Well-Constrained Quaternary-Active Fault – Well-located fault that has ruptured the ground surface within the past 2.6 million years; brackets show extent of known and suspected scarps formed on unconsolidated Quaternary deposits discussed in text; bar and ball on downthrown side.

Moderately Constrained Quaternary-Active Fault – Approximately located fault that has ruptured the ground surface within the past 2.6 million years; bar and ball on downthrown side.

Inferred Quaternary-Active Fault – Buried or concealed fault that has ruptured the ground surface within the past 2.6 million years; bar and ball on downthrown side.

Well-Constrained Fault with Undetermined Activity – Well-located fault with unknown activity class due to a lack of paleoseismic data, but suspected to be Quaternary active (movement within the past 2.6 million years); bar and ball on downthrown side.

Moderately Constrained Fault with Undetermined Activity – Approximately located fault with unknown activity class due to a lack of paleoseismic data, but suspected to be Quaternary active (movement within the past 2.6 million years); bar and ball on downthrown side.

Inferred Fault with Undetermined Activity – Buried or concealed fault with unknown activity class due to a lack of paleoseismic data, but suspected to be Quaternary active (movement within the past 2.6 million years); bar and ball on downthrown side.

Surface-Fault-Rupture Hazard Special-Study Zone – The special-study areas established for well-defined faults extend for 500 feet (152 m) on the downthrown side and 250 feet (76 m) on the upthrown side of each fault. Normal faults are classified as well defined if Utah Geological Survey 1:24,000-scale mapping shows them as solid lines, indicating they are recognizable as faults at the ground surface. Because their location is uncertain, the special-study areas around buried or approximately located faults are broader, extending 1000 feet (305 m) on each side of the suspected trace of the faults.

Bryce Canyon National Park boundary

SCALE 1:24,000

1 0.5 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

10°29'
TRUE NORTH
MAGNETIC NORTH

APPROXIMATE MEAN DECLINATION, 2026

7.5' Quadrangle Index

Wilson Peak | Bryce Canyon | Tropic Canyon
Tropic Reservoir | Bryce Point | Cannonville
Podunk Creek | Rainbow Point | Bull Valley Gorge

Map Location

Base from USGS US Topo Bryce Canyon, Tropic Canyon, Tropic Reservoir, Bryce Point, Cannonville, Podunk Creek, and Rainbow Point 7.5' Quadrangles (2020)
Projection: UTM Zone 12
Datum: NAD 1983

Project Manager: Steve Bowman
GIS and Cartography: Tyler Knudsen, Gordon Douglass, and Kristi Rasmussen

Utah Geological Survey
1594 West North Temple, Suite 3110
Salt Lake City, UT 84116
(801) 537-3300
geology.utah.gov

This map was created from geographic information system (GIS) data.

https://doi.org/10.34191/SS-178

The Utah Department of Natural Resources, Utah Geological Survey, makes no warranty, expressed or implied, regarding the suitability of this product for a particular use, and does not guarantee accuracy or completeness of the data. The Utah Department of Natural Resources, Utah Geological Survey, shall not be liable under any circumstances for any direct, indirect, special, incidental, or consequential damages with respect to claims by users of this product. For use at 1:24,000 scale.

This mapping was funded by the Utah Geological Survey and the Bryce Canyon Association, and facilitated by the National Park Service, U.S. Department of the Interior. The views and conclusions contained in this document are those of the author and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the Bryce Canyon Association or the U.S. Government. These maps and explanatory information are submitted for publication with the understanding that the Bryce Canyon Association and the U.S. Government are authorized to reproduce and distribute reprints for their use.