

# Earth Fissure Map of the Three Sisters Buttes Study Area: Cochise County, Arizona

December 2012  
Arizona Geological Survey

Digital Map Series - Earth Fissure Map 22 (DM-EF-22),  
version 2.0

## Notice

The State of Arizona has made a reasonable effort to ensure the accuracy of this map when it was produced, but errors may be present and the state of Arizona does not guarantee its accuracy. The map supplements, and is not a substitute for, a professional inspection of property for defects and conditions.

## Introduction

This is one of a series of earth fissure maps prepared by the Arizona Geological Survey (AZGS) in accordance with Ariz. Rev. Stat. § 27-152.01(3). AZGS collected location information from previously conducted earth fissure studies, reviewed available remote-sensing aerial and satellite imagery, and conducted surface site investigations throughout the study area. A reasonable effort was made to identify all earth fissures in the study area. Nonetheless, some fissures may remain unmapped as a result of one or more of the following:

- Existing fissures may have been masked by construction or agricultural activities.
- Incipient fissures may lack clear surface expression.
- The surface expression of fissures changes constantly as new earth fissures develop and old earth fissures fill in. A blank area on the map does not guarantee earth fissures are not present. However, blank areas within the study area boundary have been investigated, and no surface evidence of fissures was found as of the date of map publication. Determining the presence or absence of a fissure at any specific site may require additional mapping and/or geotechnical analysis.
- Some earth fissures mapped in this study area were previously referred to as "combination earth fissure-desiccation cracks" (Harris, 2004). Based on similar appearance, morphology, and depth of surface crack to nearby known earth fissures, these features are depicted here as earth fissures. Other shallow polygonal surface crack networks within the study area were interpreted to be giant desiccation cracks and are not depicted on this map.

## References

Arizona Department of Water Resources (ADWR), 2012, ALOS Interferometric Synthetic Aperture Radar, Hydrology, Geophysics/Surveying Unit

Harris, R.C., 2004, Giant Desiccation Cracks in Arizona, Open-File Report OFR-04-01, Arizona Geological Survey, Tucson, Arizona, 93 p.

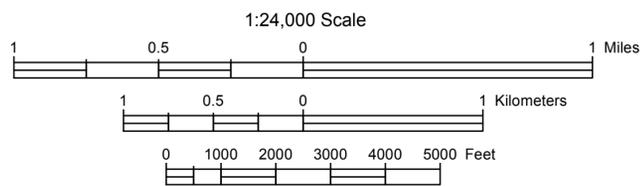
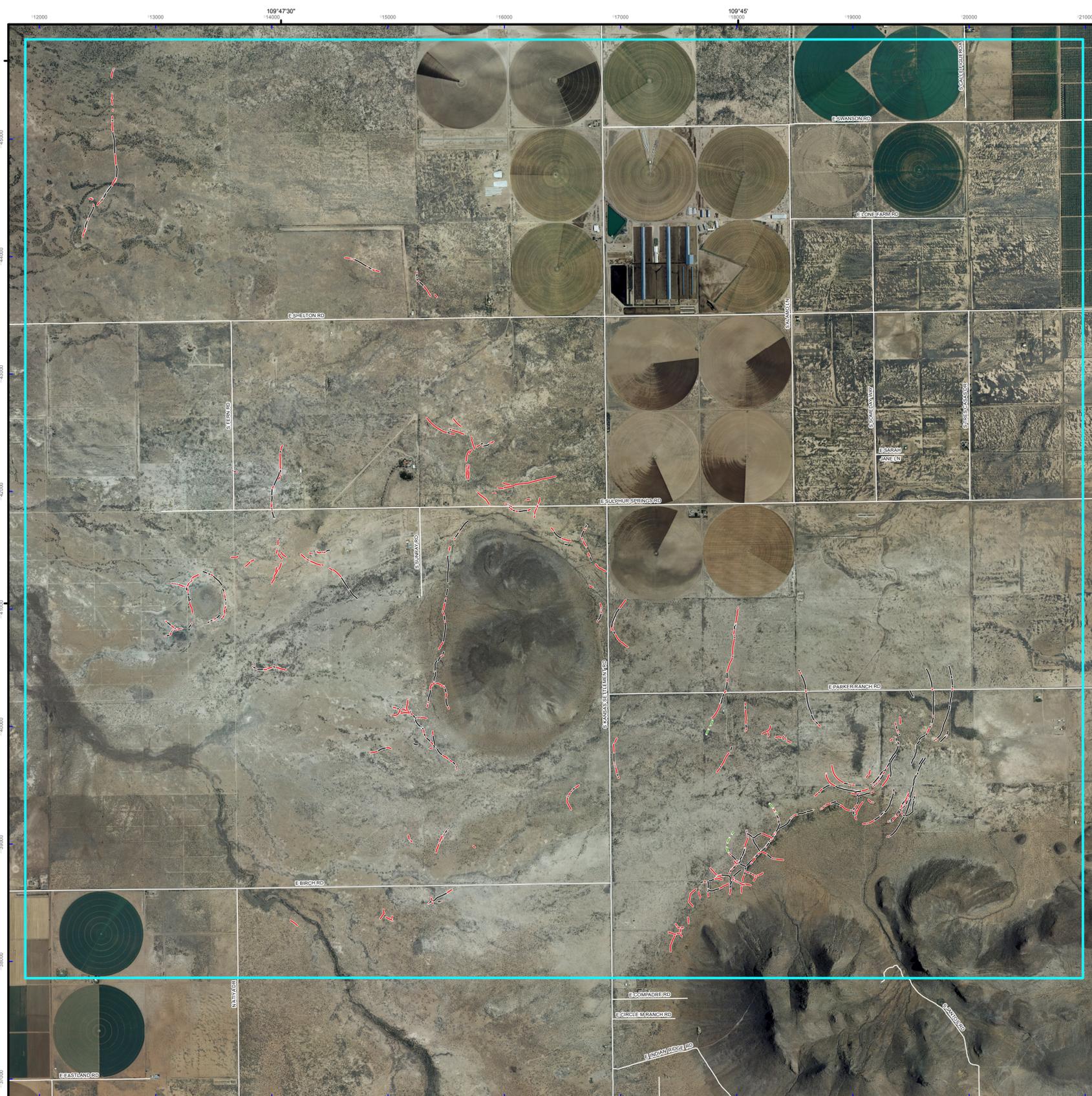
NAIP Orthoimagery (1-Meter GSD), 2010, USDA-FSA-APFO Aerial Photography Field Office, Salt Lake City, Utah.

**MAP EXPLANATION**

- Solid black lines represent the location of continuous earth fissures manifested as open cracks or gullies.
- Solid red lines represent the location of discontinuous earth fissures manifested as elongated to circular depressions or as abbreviated or irregular linear depressions. These discontinuous surface features frequently represent an incipient surface expression of an earth fissure.
- Dashed green lines represent the approximate locations of unconfirmed earth fissures, defined as fissures which could not be confirmed by surface investigations by AZGS geologists, but which have been previously reported by Professional Geologists in published documents or maps.
- The outline of the Study Area is shown in blue. Historical and modern aerial photos taken within this area were searched for anomalous lineaments. These lineaments were then investigated in the field to determine if there was any evidence of earth fissures.

Subsidence data provided by the Arizona Department of Water Resources (ADWR) Interferometric Synthetic Aperture Radar (InSAR), Hydrology, and Geophysics / Surveying Unit. Subsidence data for other locations and time periods is accessible at <http://www.azwater.gov/AzDWR/Hydrology/GroundwaterandLandSubsidence.htm>

Shaded relief basemap produced from 10m NED Digital Elevation Model



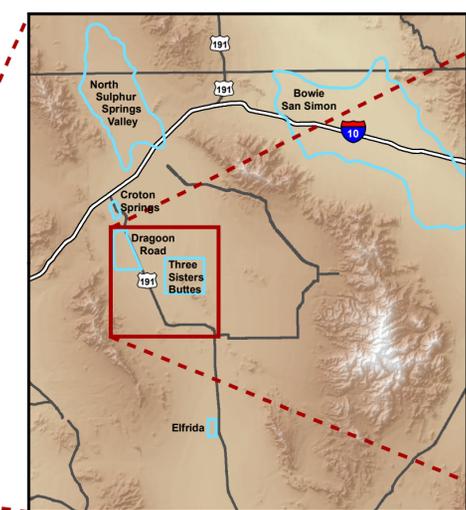
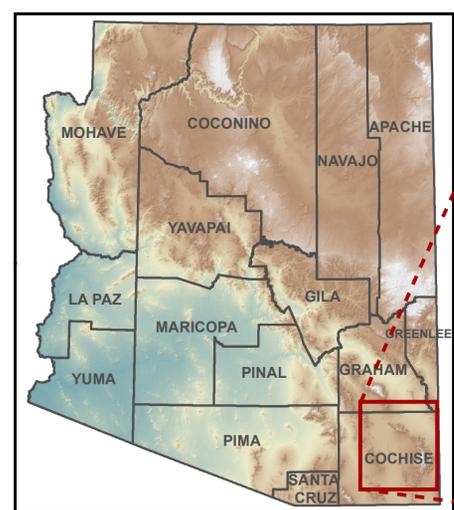
Air photo base compiled from 2010, 1 meter NAIP (National Agriculture Imagery Program) digital ortho imagery.

Transportation network dataset compiled by Arizona State Lands Dept. by combining the 2007 County Road Data of Maricopa, Pima, Pinal and Cochise Counties with the Census 2000 Tiger/Line Data of the remaining Counties.

Map projection and blue, 1000-meter grid ticks: Universal Transverse Mercator, zone 12, North American Datum of 1983 HARN



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## Ground Subsidence Map

