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Release of Earth Fissure Study Area Maps: Luke, Maricopa County, and Pete's Corner, Pinal County

Tucson -- New earth fissure study area maps showing the location and status of earth fissures for the area near Luke Air Force Base in Maricopa County, and for Pete's Corner, Pinal County, are now available.

Downloadable PDFs of the study area maps at 1:24,000-scale are available at the Arizona Geological Survey's (AZGS) Earth Fissure Center (<http://www.azgs.az.gov/efmaps>). For interactive viewing and custom map-making, visit the Arizona Department of Real Estate's Earth Fissure Viewer at <http://azmap.org/fissures>.

"We have now released maps for seven of the 23 earth fissure study areas and expect to have more maps completed in the next several months", said Lee Allison, State Geologist and Director of AZGS. He added, "Our priority is on areas where rapid development is occurring in and around fissure areas." First-round mapping of all 23 study areas is expected to continue through 2011.

The earth fissure planning maps (1:250,000-scale) for Maricopa and Pinal Counties were updated, too, to show the status of earth fissure mapping.

Earth fissures are a serious geologic hazard in the arid valleys of central and south-central Arizona. As population centers expand into subsiding areas of our basins/valleys, residents and structures are placed in closer proximity to fissures.

The heavy precipitation and surface runoff that accompanies Arizona's monsoon season can turn a barely perceptible fissure into a 20-ft deep, steep-walled gully that cuts roadways, threatens homes, and traps livestock.

For ease of use, the maps include an up-to-date road network and shaded relief that accentuates local topography. Colored lines are used to denote fissure location and status: 1) solid black line for continuous fissures; 2) solid red line for discontinuous fissures; and 3) a dashed green line for unconfirmed but suspected fissures.

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ADDITIONAL INFORMATION

Background. Earth fissures are associated with land subsidence that accompanies extensive groundwater pumping. The earliest appearance of fissures in Arizona was near Eloy in 1928. Individual fissures range in length from hundreds of feet to miles, and in width from inches to ten's of feet. Currently, geoscientists believe that fissures initially form at the groundwater table and then propagate upwards hundreds of feet to the surface. Because fissures are commonly oriented perpendicular to local drainages, they are capable of capturing surface runoff. Inrushing waters may cause dramatic changes in fissure geometry – length and width -- erosion of sidewalls and gully development. Property owners are encouraged to set structures as far away from fissures as possible and to prevent water from entering them.

So far, reports of earth fissures are confined to Cochise, Maricopa, Pima, and Pinal counties in central and south-central Arizona. In 2007, AZGS released 1:250,000-scale planning maps of the four counties showing the approximate locations of earlier reported earth fissures. These earth fissure planning maps are available free, online at the Earth Fissure Center at www.azgs.az.gov/efc.

AZGS is charged by state statute with mapping earth fissures in Arizona. The earth fissure map information is then provided for public release via the State of Arizona's Internet map service accessible from the Arizona Department of Real Estate's website.