

# Potential use of 3D datasets for the analysis and monitoring of earth fissures

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# Contents

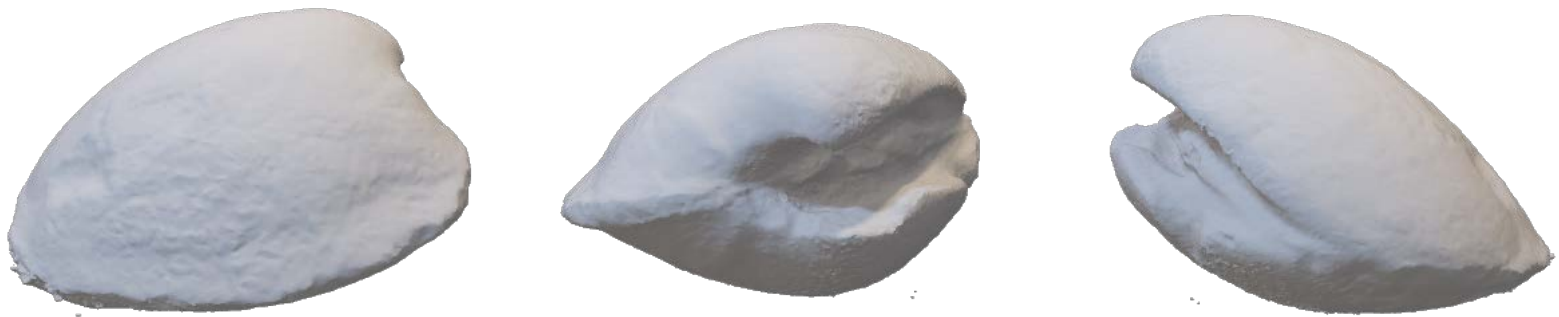
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1. Introduction
2. Materials and methods
3. Results
4. Conclusions

# 1. Introduction

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- Remote sensing techniques enable the acquisition of 3D datasets

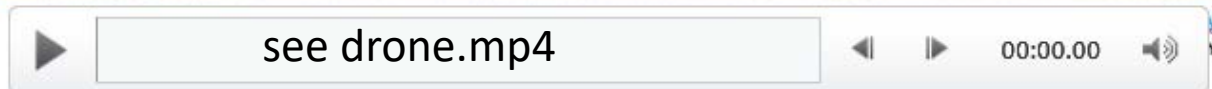


- In this work it is presented how to analyse an Earth fissure through videos downloaded from the Internet.

# 1. Introduction

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- Mapping of Earth fissures is of interest.
- RPAS are used to its analysis:



[Arizona Geological Survey  
https://www.youtube.com/watch?v=9xdAnftBKvY](https://www.youtube.com/watch?v=9xdAnftBKvY)

## 2. Materials and methods


Recibidos (2) - ariquelme@... X (26) Using Drone Technology X +

https://www.youtube.com/watch?v=9xdAnft8KvY&t=93s

Buscar

YouTube ES

Buscar



Using Drone Technology to Examine an Earth Fissure

683.593 visualizaciones

Arizona Geological Survey  
Publicado el 23 ene. 2017

Drone visual of a fresh earth fissure in the Tator Hills area. southern Pinal County. A7GS3

Siguiente

REPRODUCCIÓN AUTOMÁTICA

Drones Sacrificed for Spectacular Volcano Video | National Geographic 4,8 M visualizaciones 3:30

#490 Arizona Geology Tour Revolution Against Evolution - Doug 1,3 K visualizaciones 29:23

Paul Lindberg - Geologic Features of Archaeological Verde Valley Archaeology Center 19 K visualizaciones 1:04:50

TIERRA PLANA - Documental Completo en Español Casualidades y Serendipias Recomendado para ti 32:02

The Advanced Pre Ice Age Civilizations that Vanished From Out of Place Discoveries TV 2,3 M visualizaciones 1:24:37

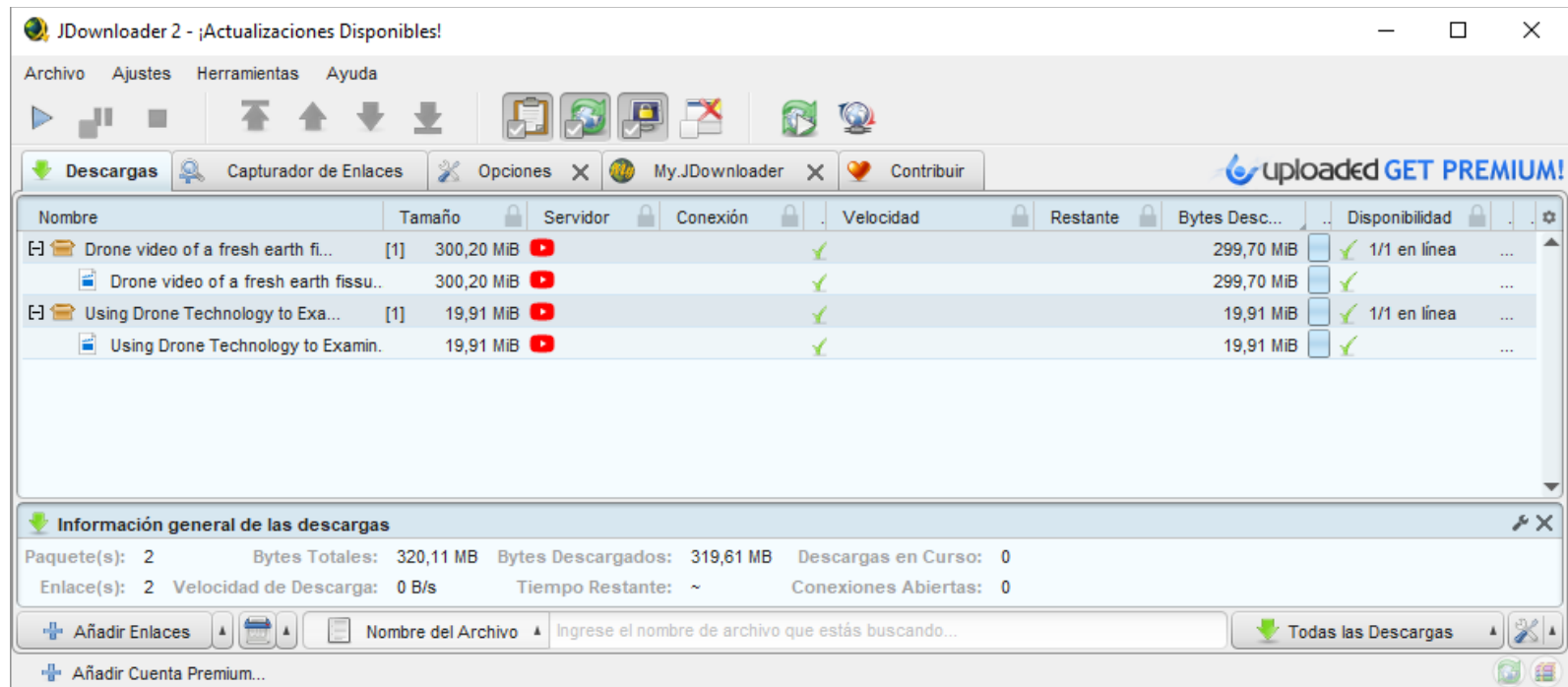
The Spiral Nemesis Martin Barretto 82

Dubai Billionaires and Their Luxury Homes and Toys - Provident Real Estate 12 M visualizaciones 46:25

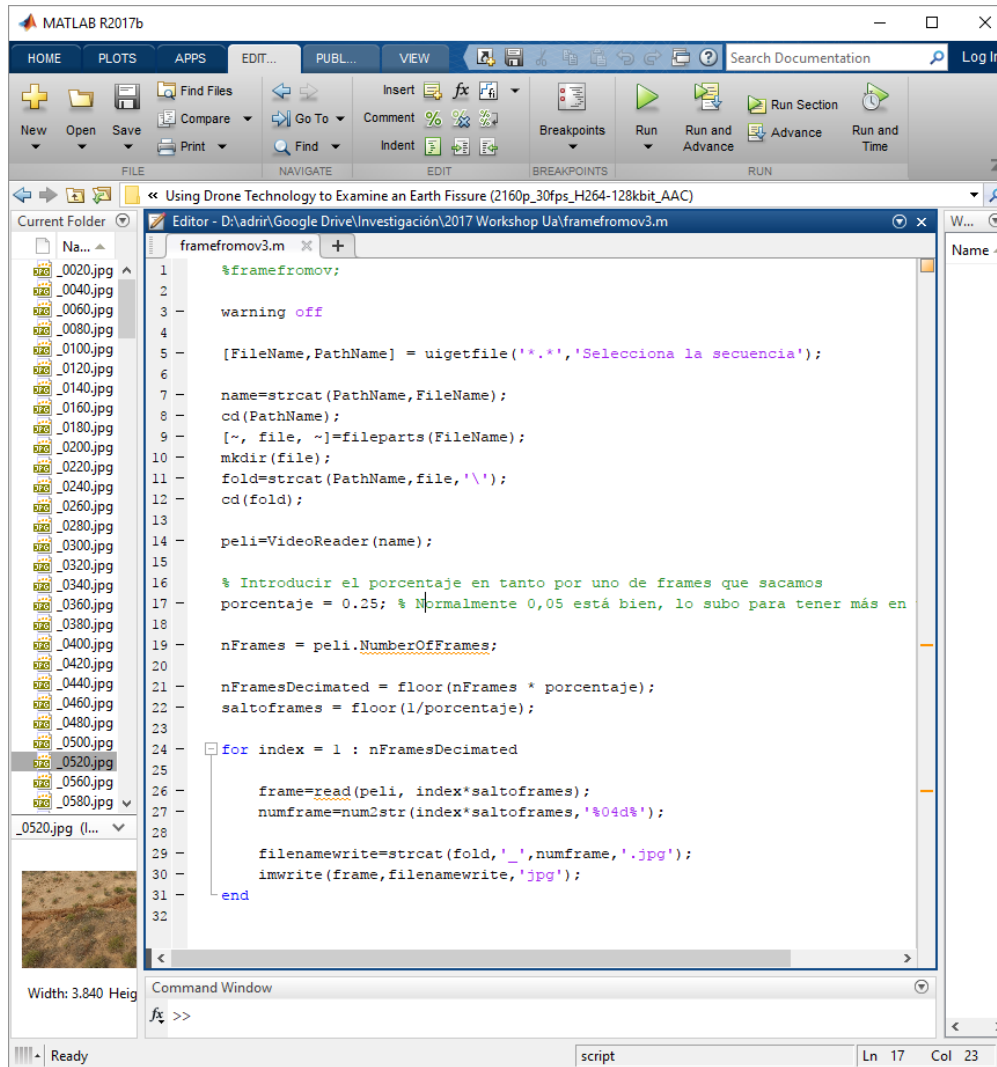
Jesus Quintero entrevista a Chiquito de la Calzada ForoNETEP Recomendado para ti 11:15

Baby Einstein ☆ Baby's First Moves ☆ Puppets & Animals

## 2. Materials and methods



## 2. Materials and methods

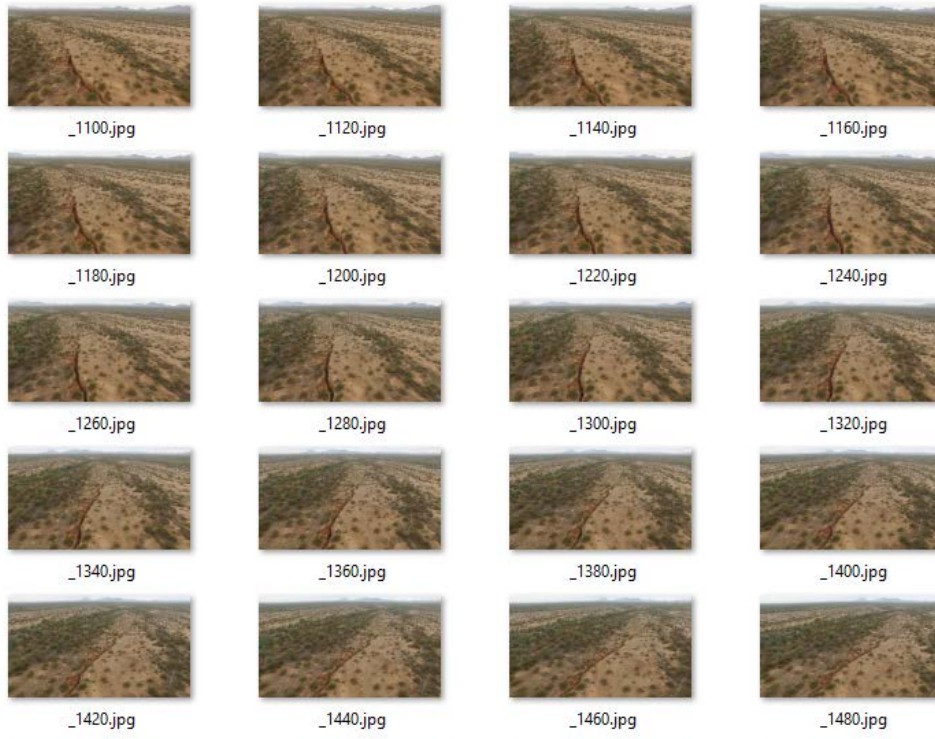


- Using MATLAB we can extract the frames of a video.



## 2. Materials and methods

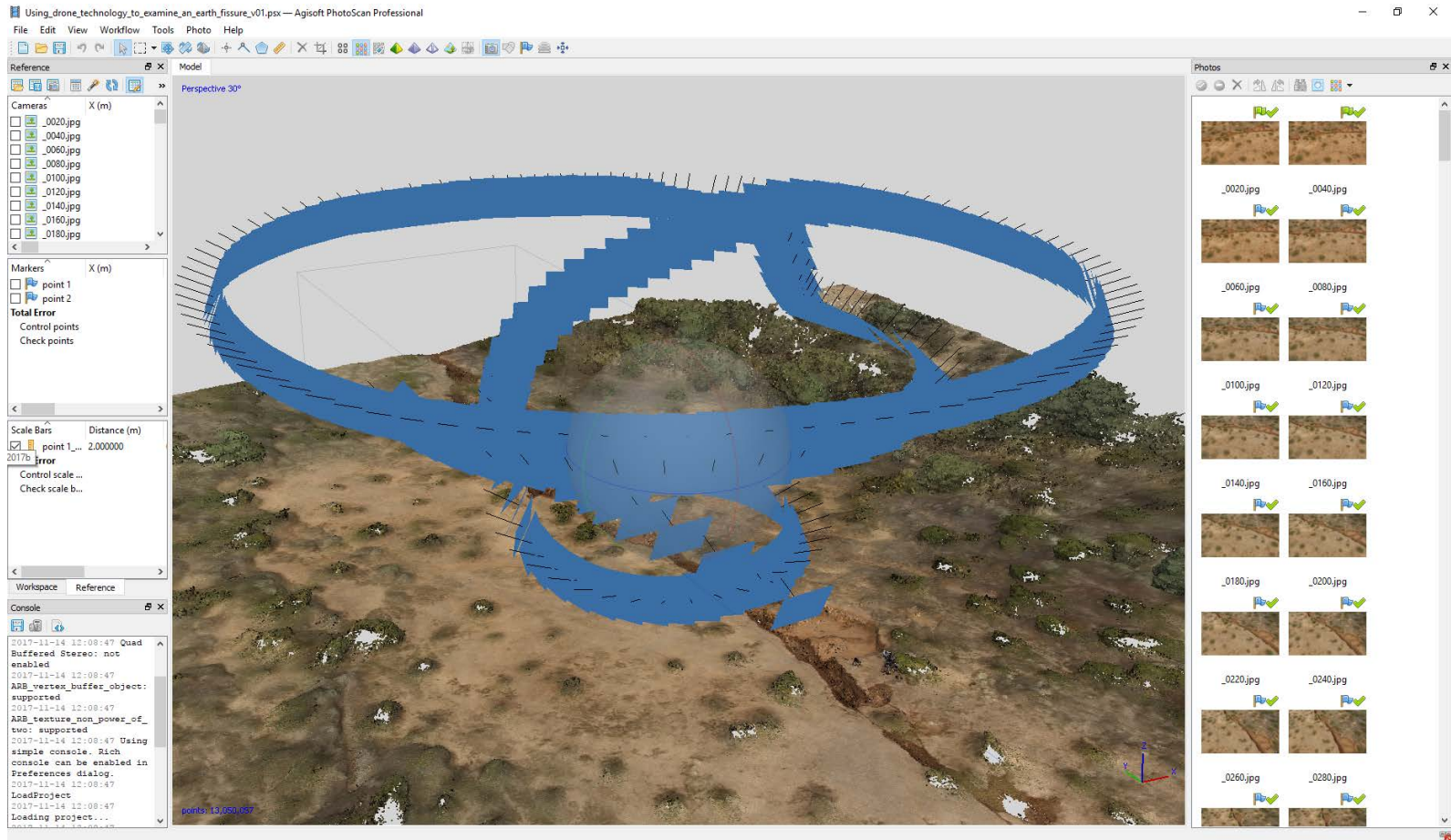
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- Each photo is captured from a different point and direction
- Photos can be processed by a SfM program
- Metadata is lost
- Each photo is almost 10MPx



## 2. Materials and methods



### 3. Results

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3D point cloud obtained through a video downloaded from YouTube uploaded by the Arizona Geological Survey



**dic**.ua.es



see model.mp4



00:00.00



## 4. Conclusions

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1. Remote sensing techniques enable the reconstruction of an Earth Fissure.
2. Use of RPAS along with SfM is a fast and cost-effective technique.
3. Operators work under safe conditions.
4. A 3D model is generated.
5. Measurements can be extracted.
6. Comparing 3D models along time enable the monitoring of the fissure.

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