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

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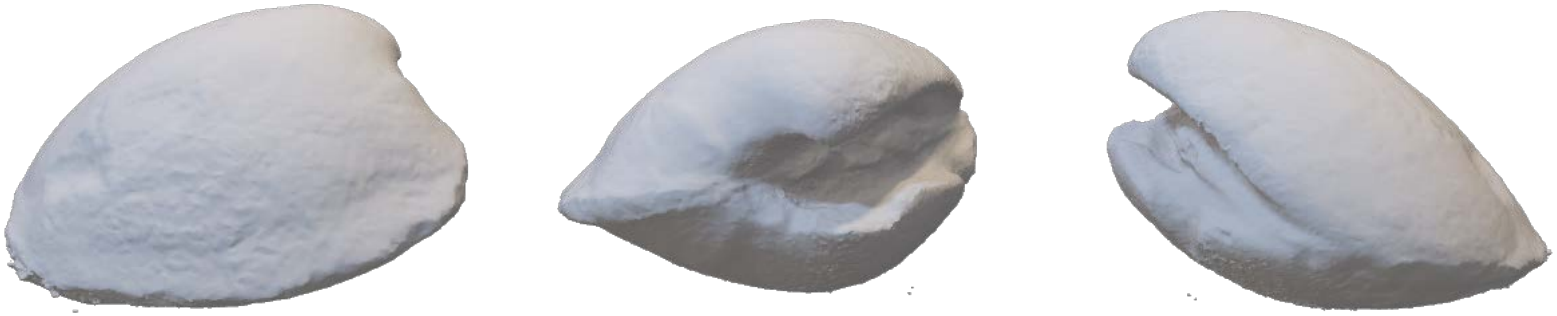
1. Introduction

- Remote sensing techniques enable the acquisition of 3D datasets



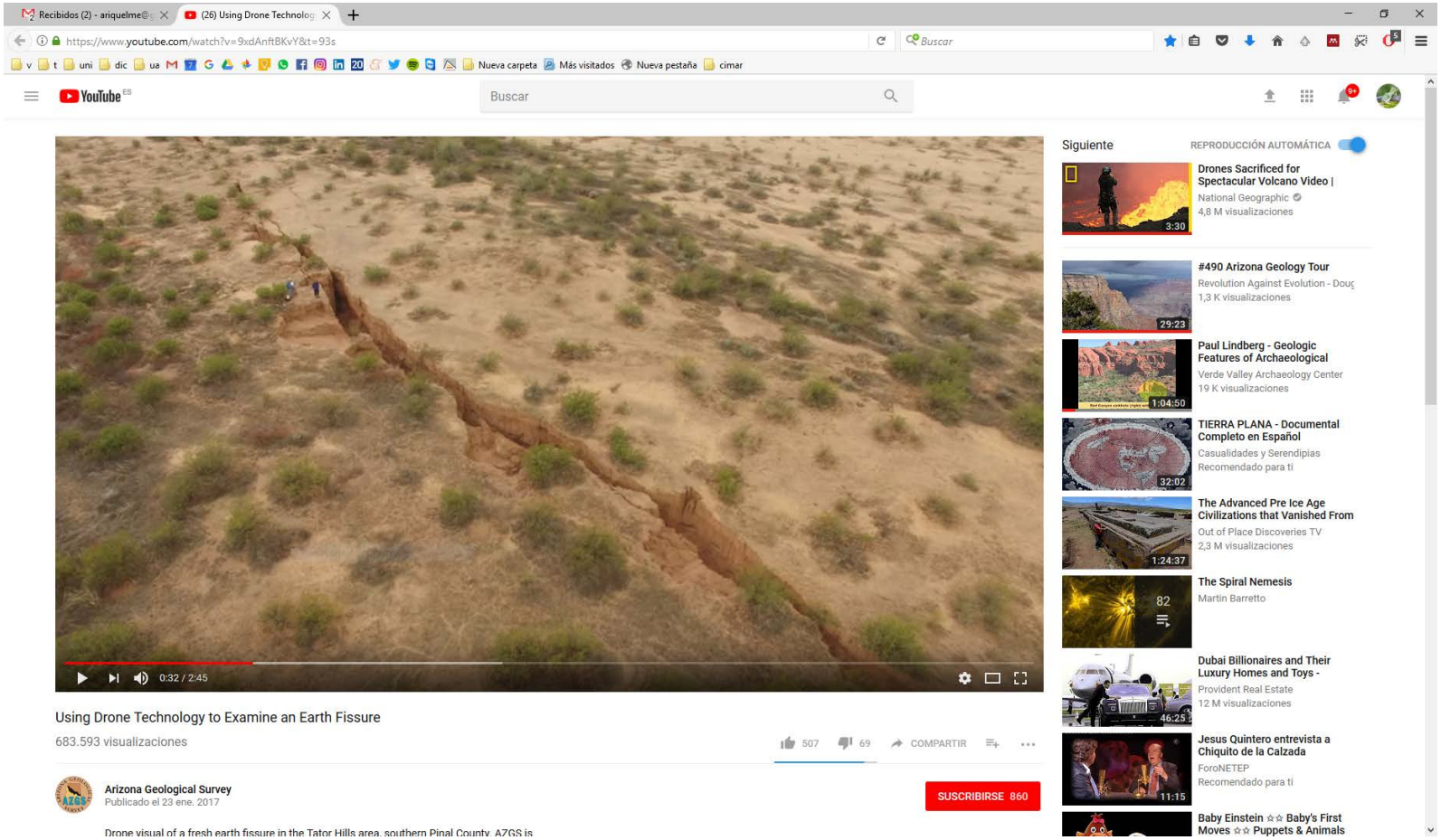
- In this work it is presented how to analyse an Earth fissure through videos downloaded from the Internet.

1. Introduction

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

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

2. Materials and methods



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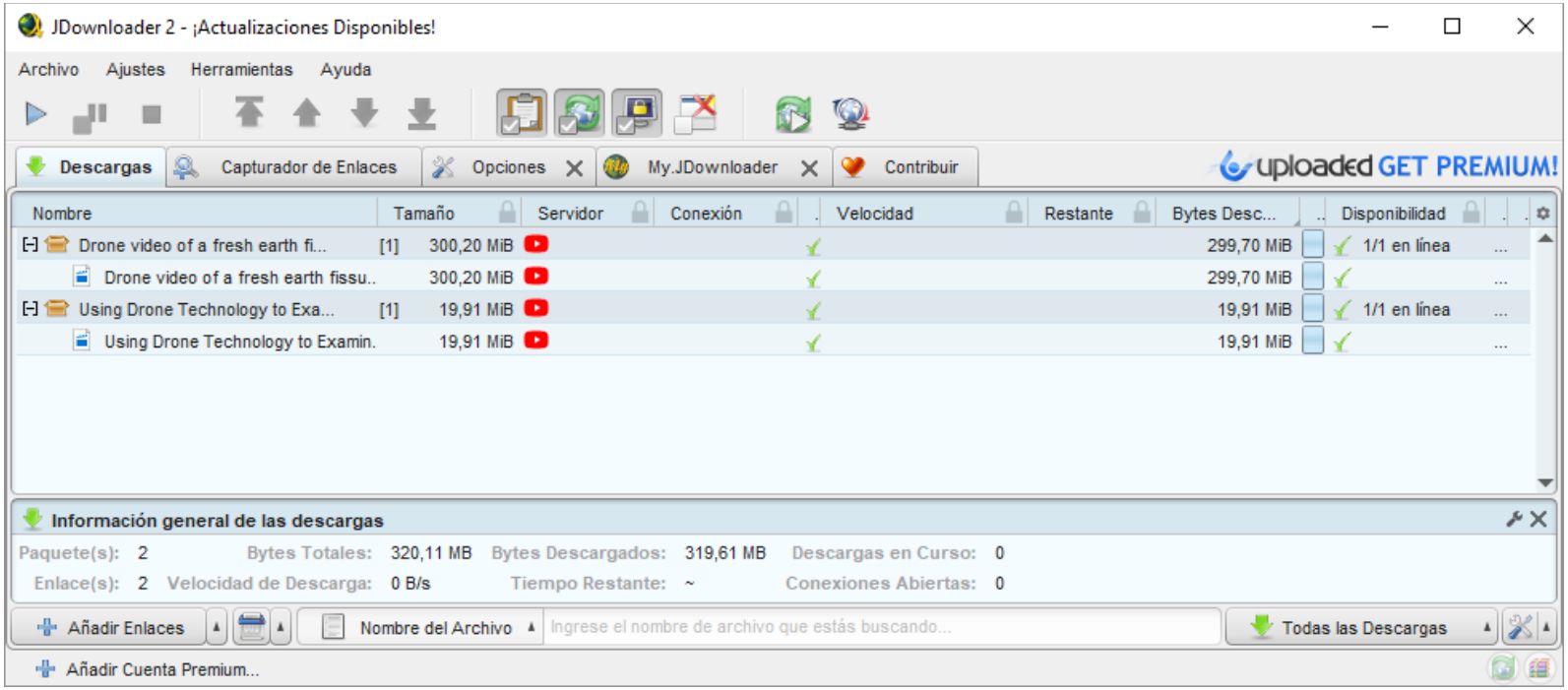

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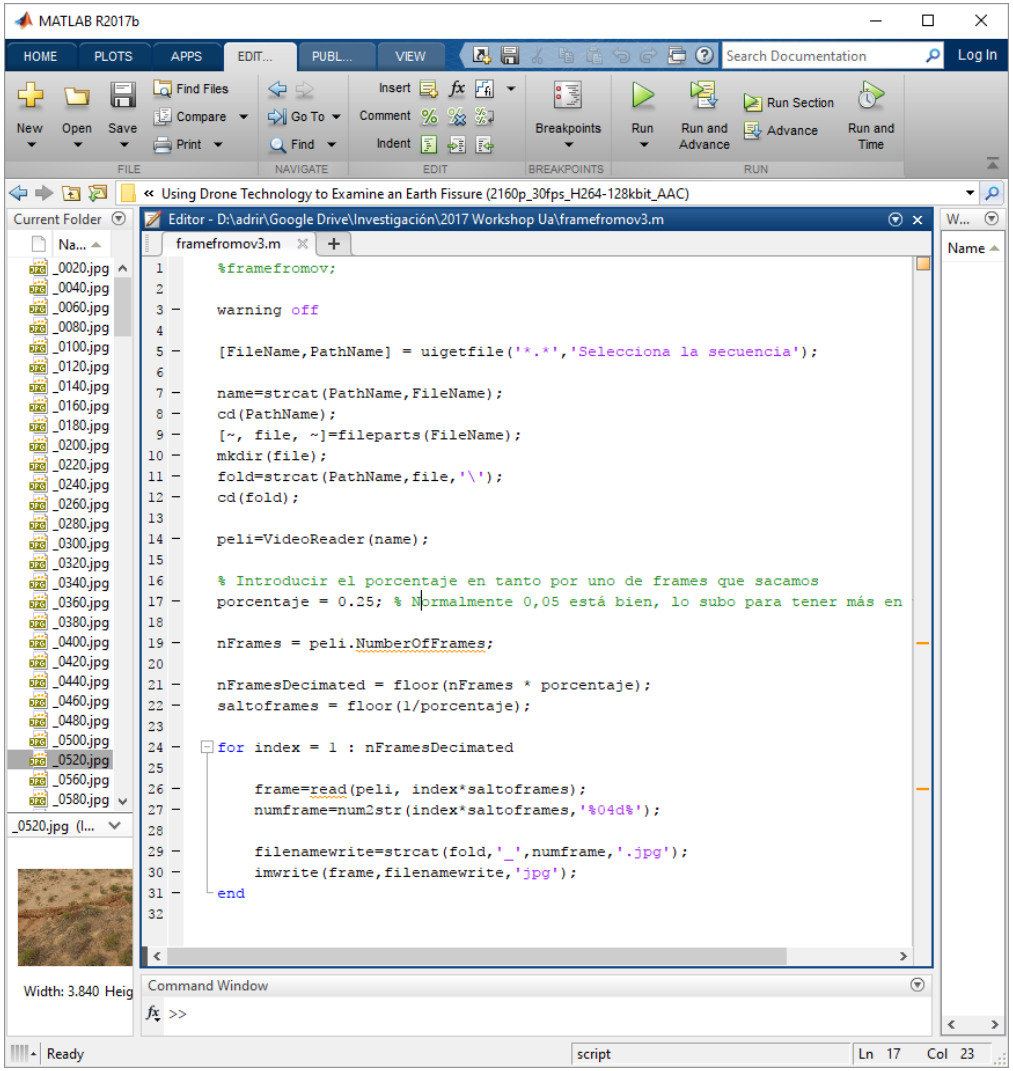
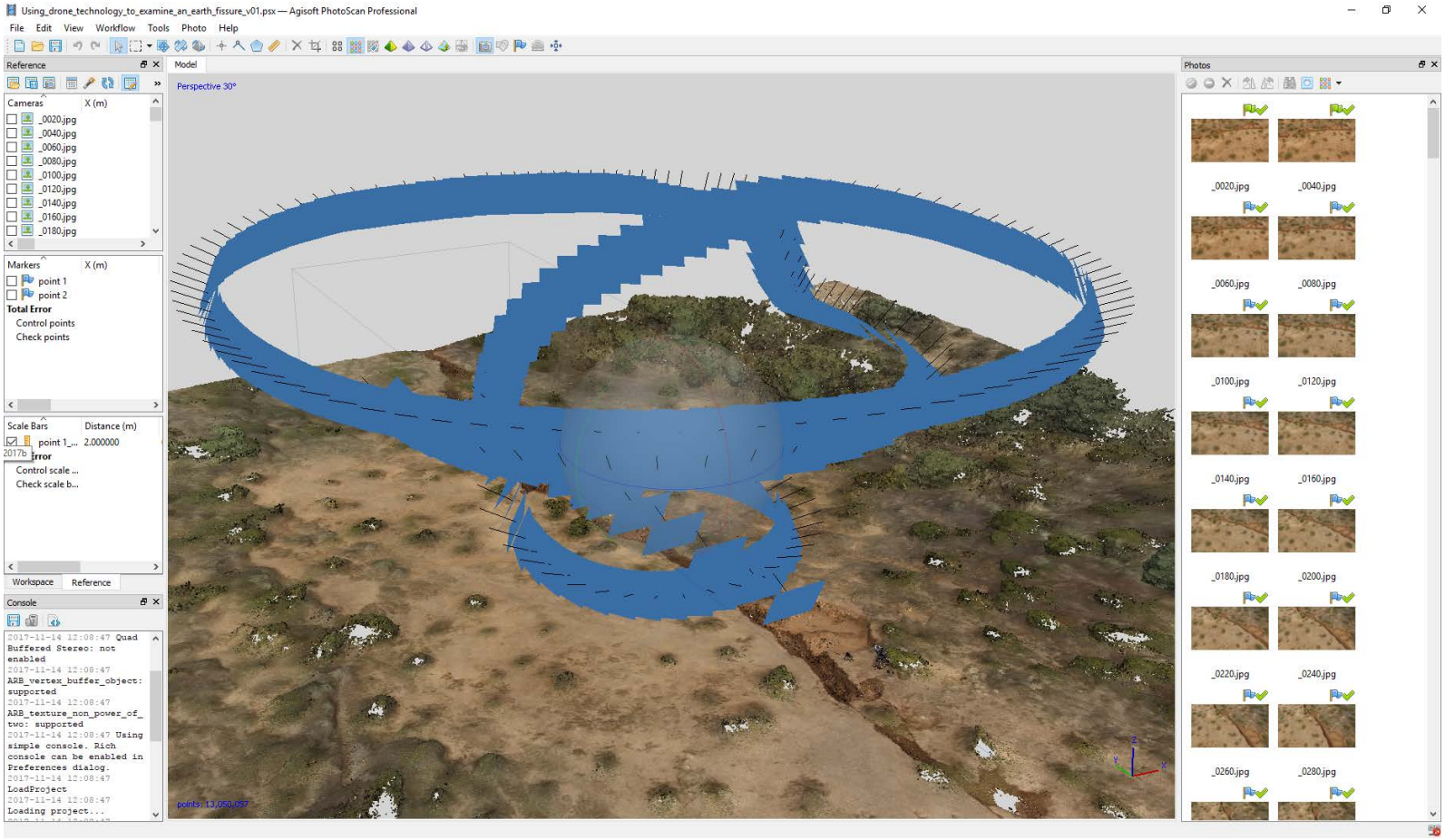


- Using MATLAB we can extract the frames of a video.

2. Materials and methods

- 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

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

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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