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

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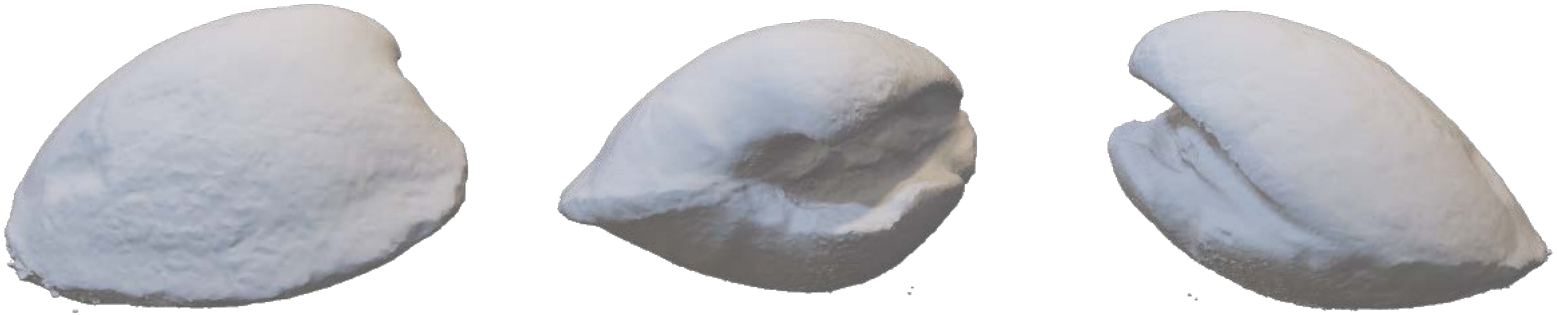
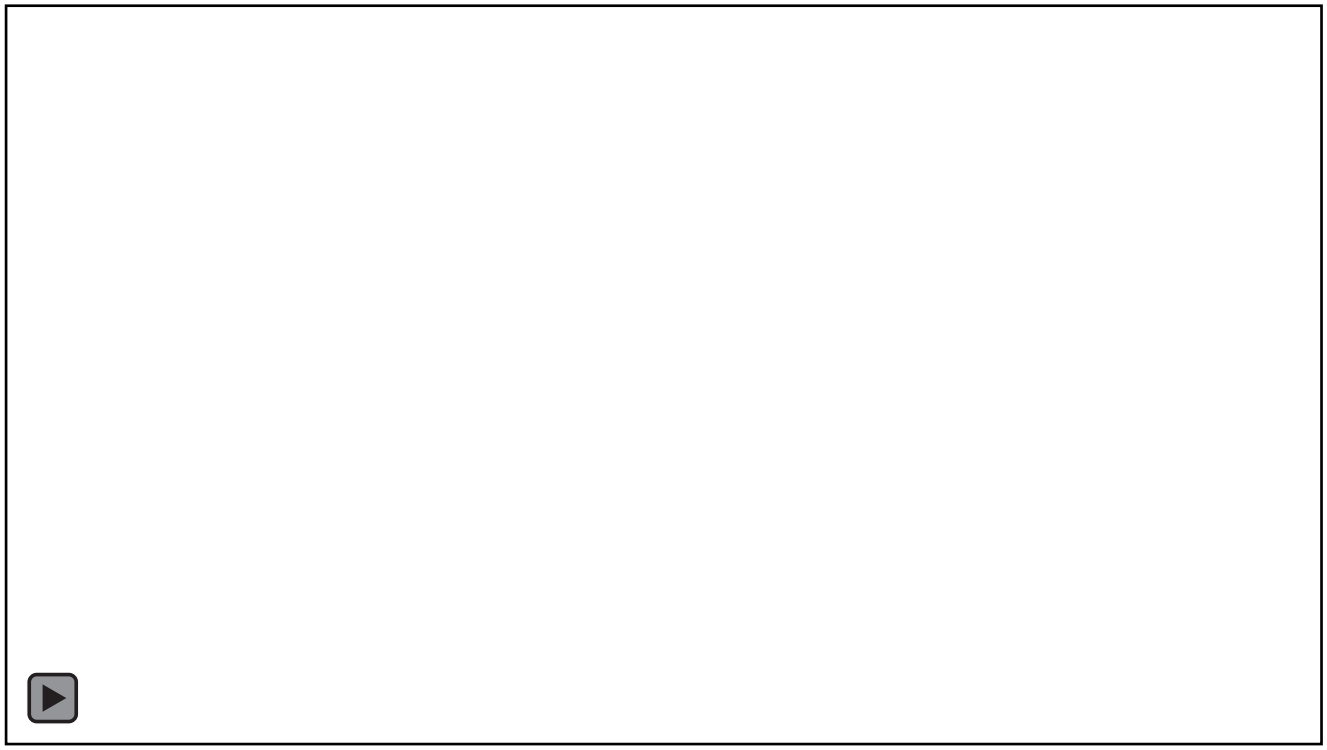
- Remote sensing techniques enable the acquisition of 3D datasets



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

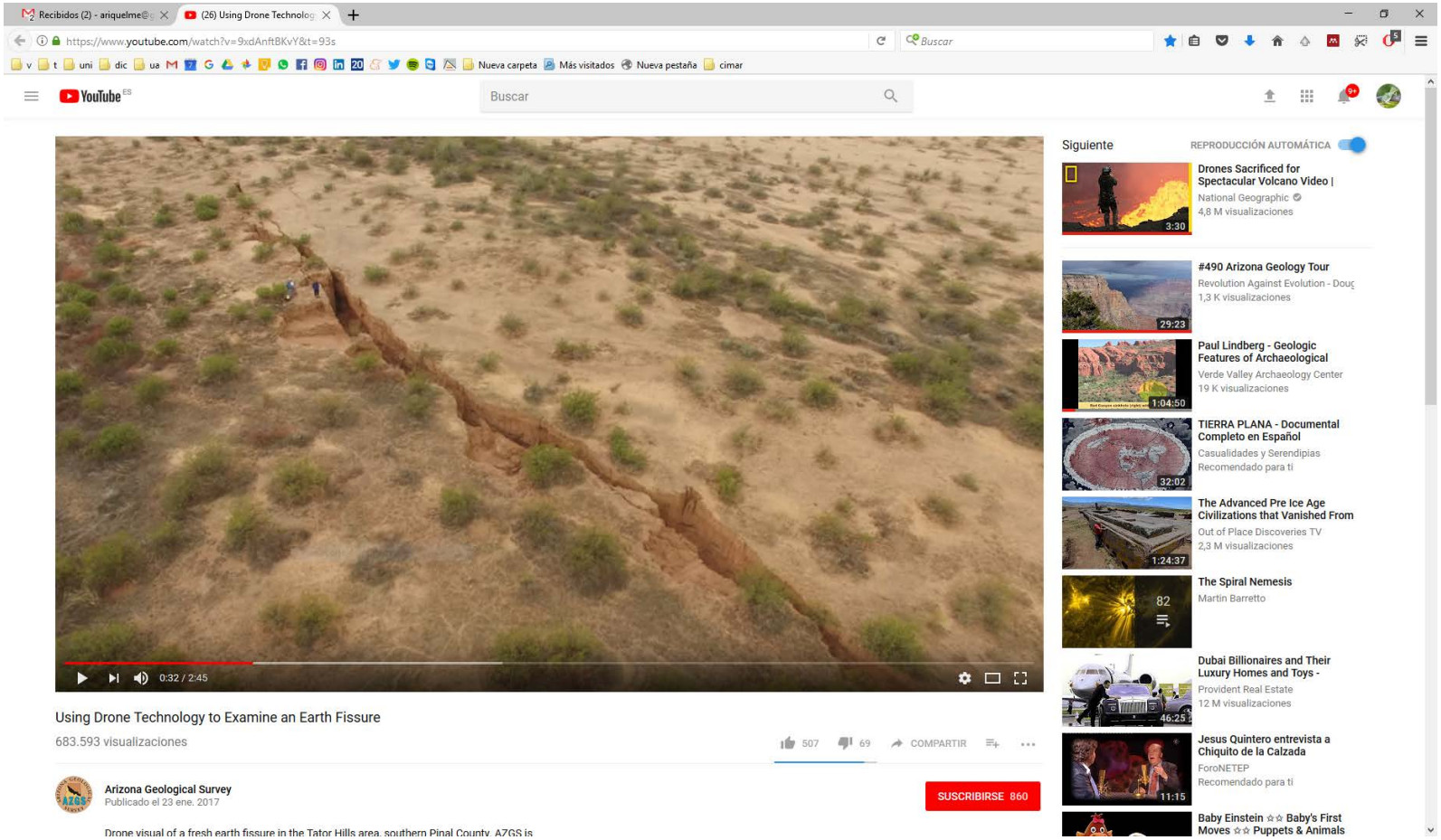
1. Introduction

- 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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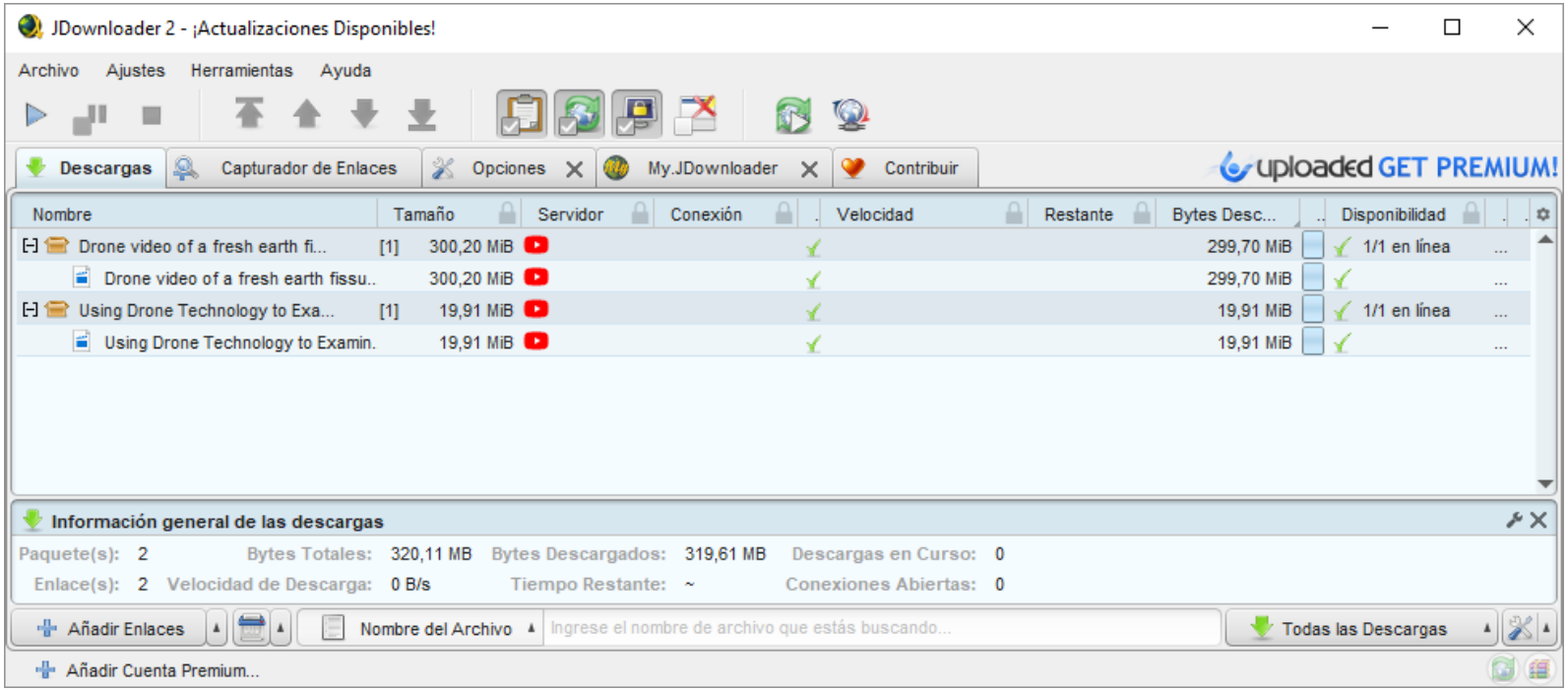
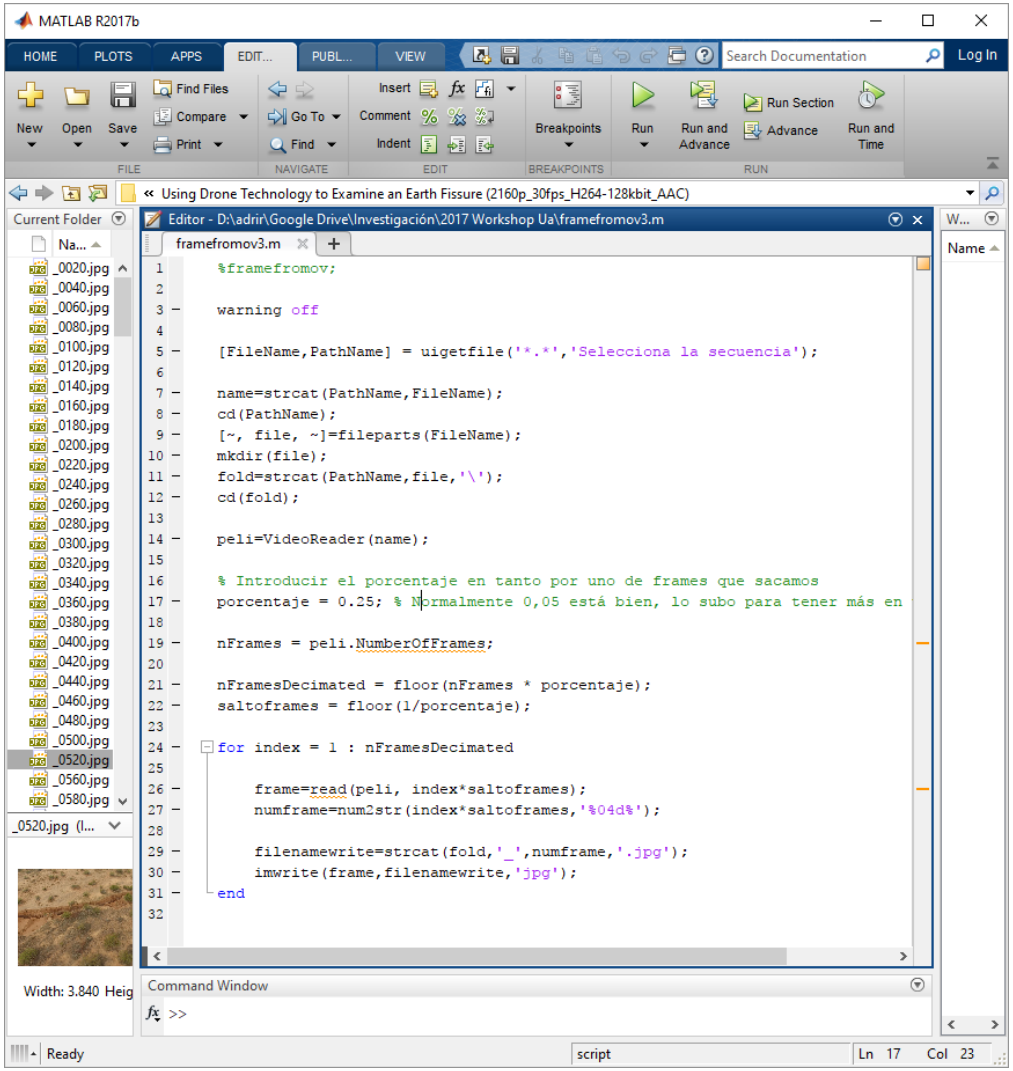


2. Materials and methods

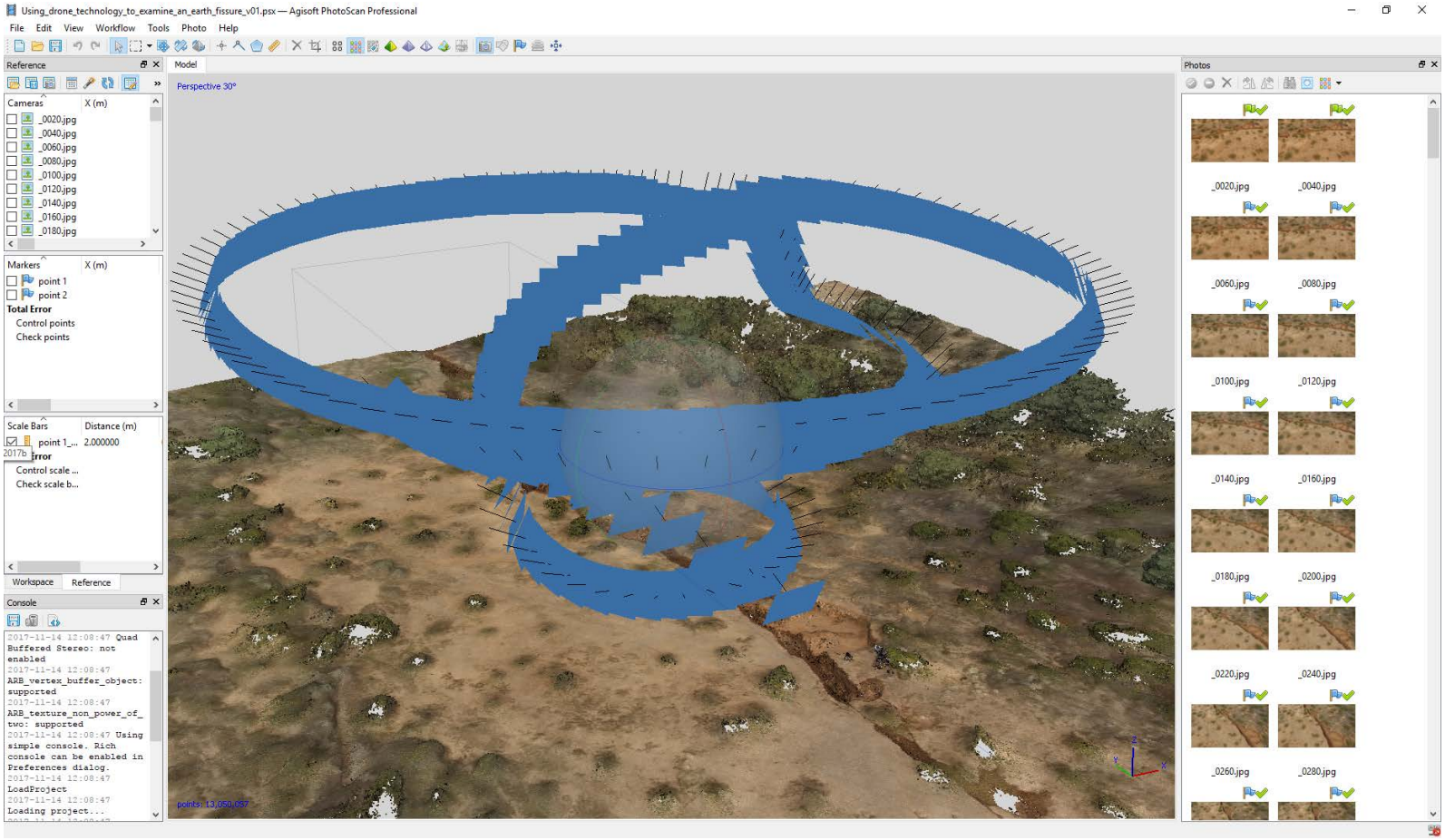


- Using MATLAB we can extract the frames of a video.

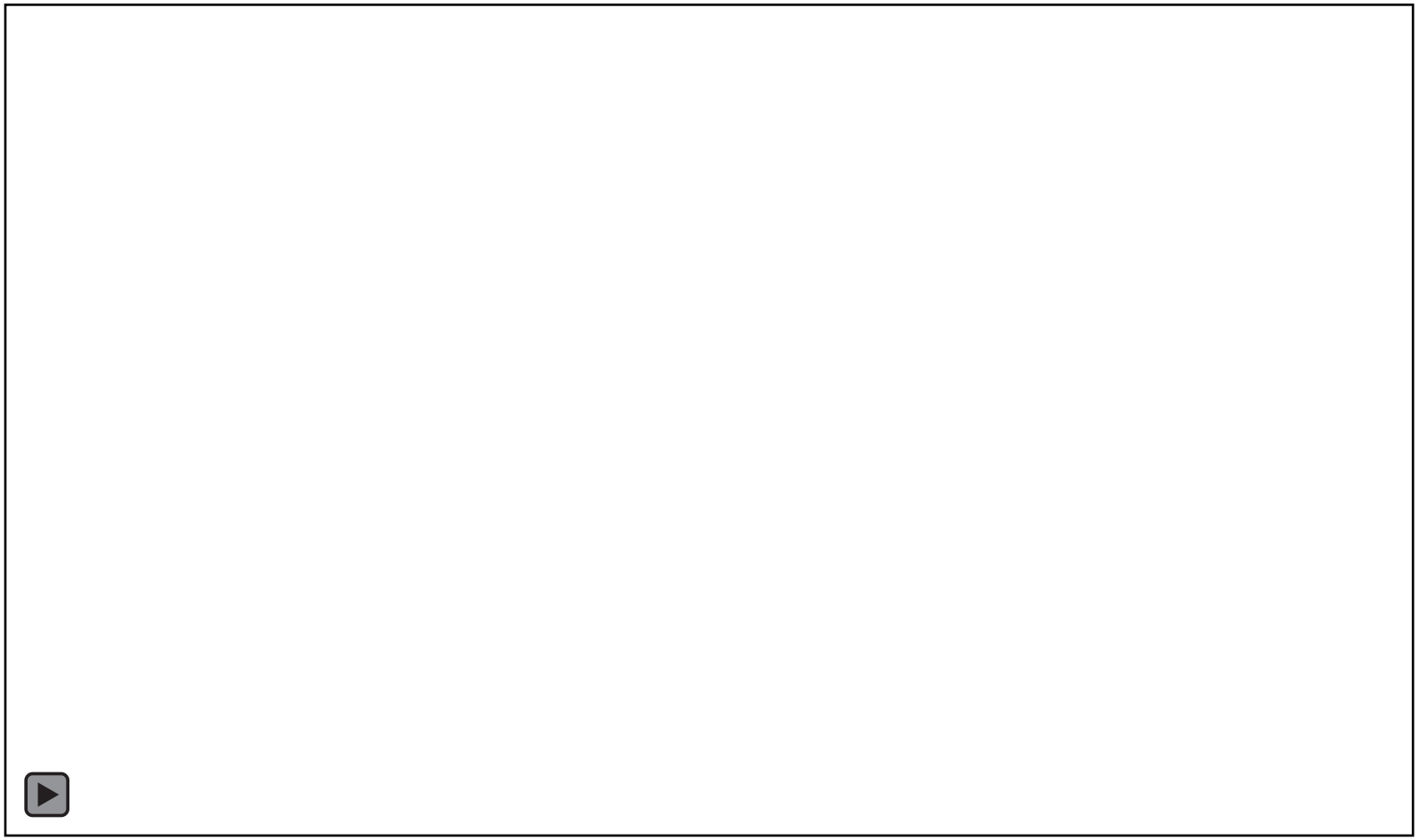
2. Materials and methods

- 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



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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