

Can we Predict and Prevent a Flash Flood Disaster in the Desert?

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~ ~ ABSTRACT ~ ~

Desert flash floods are an intense and unpredictable natural phenomenon that has killed many people and destroyed many homes. The paper's main focus was to study the formation of flash floods in the desert, their impacts, and the current technology used to predict and prevent flood events. By reading primary literature, it was found that despite the destruction caused by flash floods, they are actually a necessary phenomenon for the survival of many species. Predicting locations prone to flash floods became possible as technology became more advanced. Lastly, it is important to educate the public on the risk of living in areas prone to flash floods.

~ ~ RESEARCH APPROACH ~ ~

- Background knowledge obtained through books found in Steacie Library
- 27 peer-reviewed journal articles were read and cited
- Search Engine or Database Used: Web of Science, Environment Complete, and Google Scholar
- Example of Key Words Used: **Flash Flood, Desert, Prediction, Disaster, Environment**

~ CONCLUSION ~

- Flash floods are not just natural disasters that destroy everything in its path
- Flash floods are required for the survival of many species in the long-run (ex: native fish)
- Predicting the location and time of flash floods is still very difficult even with technology advancement due to influence of many factors
- Dams may be used to prevent flash floods from reaching settlements, but they are not 100% effective
- Rather than stopping a flash flood from hitting a town/city, avoiding areas prone to floods may be a better strategy – more studies required

~ ~ ~ ~ KEY FINDINGS ~ ~ ~ ~

Formation

- Flash floods tend to occur right after or during a short but intense rainfall
- Geological characteristics of **wadis** (watershed in arid regions)
- Dam failure
- Infiltration and transmission loss

Positive Impacts

- Recharges groundwater - alternative water resource for people
- Growth and survival of keystone species – **Acacia trees**
- Maintains population of native fish species

~ RESEARCH QUESTION ~

What are the impacts of flash floods in the desert, and how can these events be predicted and prevented?

Technique to Predict

- GIS & remote sensing technology → increase accuracy of predictions
- Hydrological models - flash flood forecasting
- Sampling soil type + spatial analysis of vegetation

Negative Impact

- Hyperpynal flow → affects existence and formation of coral reefs
- Loss of lives
- Heavy damages to buildings
- **"Backwater" effect**
- Secondary effects - oil tank explosion

~ NEXT STEPS ~

- Further studies are required to confirm results of certain flash flood impacts
- It is important for researchers to work closely with the locals to determine area prone to flash floods and the best course of actions when a flash flood occurs



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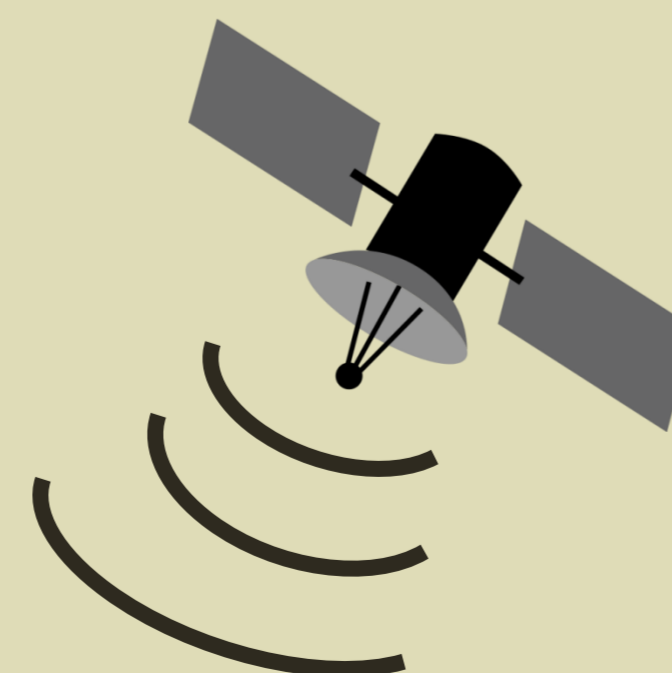


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