Part 1

A Climate Connection

1. How many days did the Grizzly Creek Fire cause a shut down of major interstate through the Rocky Mountains? 13 days
2. After the Grizzly Creek Fire, how long did it take for rocks to start falling? Months
3. What does Santi not say about the importance of tree roots or slope stability? Tree roots are removed during forest fires
4. After the Grizzly Creek Fire, how long does Santi say we see increased risk of debris flows? Years
5. How many people were killed by debris flows after the 2018 wildfires near Montecito, California? 23
6. How many people were injured … 167 or more
7. How many homes were damaged? 408
8. What combination does Santi say will see higher frequency of debris flow? Longer fires and more intense weather events
9. Scientists are discovering changes in types of landslide activity due to climate change. Which of the listed is not one of these landslide types? Rotational slides
10. In what area have researchers recorded more rockfalls as average temperatures rise? Please select all that apply
    1. Everything except Chile
11. Choose the statement that is NOT correct regarding climate change effects on landslide activity. Scientists have begun studying climate change effects on slope stability in North America and Asia

From Rock climbs to rockfalls

1. In the French Alps, what year had a series of huge rockfalls? Enter your answer as a NUMBER without words or units 2005
2. In the French Alps, there was a series of huge rockfalls. At what elevation did they occur (in meters)? Enter your answer as a NUMBER without words or units. 2754 m
3. Data collected from Mont Blanc massif from the end of the 1800s to present times, has shown (a) 80 % of the rockfalls occurred between (b)1990 and (c) 2015. Enter your answer as a NUMBER without words or units
4. What does Deline say about rockfall frequency? Rockfall frequency is connected to warming temperatures
5. Select the FALSE statement: Permafrost works to weaken rock faces
6. What seasonal conditions did scientists find saw an increase in rockfalls? Hot Summers
7. Scientists used carbon dating which supports that permafrost degradation is due to climate change. (True/False)

A Tangled Web

1. Which is NOT a component of climate change linked to an increase in landslides? Tsunami
2. Which cascade of events leading to a landslide is INCORRECT? Increasing temperature, drought, landslide

Part 2

Paragraph 1

1. Why could climate change cause more landslides in the High Mountain Asia region?

More frequent and intense rainfalls

1. Climate change could cause more landslides in High Mountain Asia. Which location is not mentioned? India

Refer to first figure

1. What general location of Nepal has a higher likelihood of seeing changes in landslide activity? Northwest
2. There will be a greater change in potential landslide activity during this season. Summer

Paragraph 5-7

1. Heavy rain during the monsoon season from June-September can trigger landslides, which cause a range of disasters. Which of these disasters is not listed in the article? Power Outages
2. Monsoon seasons in (a) 2019 contributed to landslides in Nepal, India, and Bangladesh, displacing more than (b) 7 million people. Enter your answer as a NUMBER without words or units.
3. What are some ways to predict landslides that the article does NOT mention? Knowing future precipitation
4. What does the NASA model do? It generates potential landslide activity using real-time rainfall data
5. What is NOT used to inform the NASA model? Nearby population
6. Preceding 7 days
7. What did the Predictive NASA models not find? Frequency of flash floods will remain stable
8. Evaluating model projections in the context of five potential population scenarios found that all residents in the area will be exposed to landslide activity increases greater than 20%. (True/False)

Article questions

1. Our article’s main purpose is to present new previously unpublished methods, knowledge, or content, presented directly by those responsible for discovering it. (**True**/False)
2. The central message of the article is constructed mainly by gathering work done from pre-existing literature and/or sources. (**True**/False)
3. The article is mainly targeting a general non-scientific audience. (**True**/False)
4. The content in the article is presented in a non-technical manner, without presenting a complete “chain of evidence” in the form of references and citations. (True/**False**)
5. Which one of these options most accurately characterizes the main purpose of this article

A commentary or report aimed at making recommendations about priorities, policy, or decision making

1. What type of source is this? Primary

Part 3

1. Why is it useful to study the European Alps? Choose the answer that does NOT apply

**The European alps cover a large area**

1. Which processes is not a concern? **Wildfires**
2. What data has NOT been collected across the European Alps at a high spatial resolution? Wind
3. Why is it important to have a good temporal resolution of climate data in environments like the European Alps? Select all that apply
4. Refer to Figure 5.1. Why are the mountains separated into four quadrants?

Chapter 5.5

1. Increased weathering can lead to an increase in landslides. Which one of these processes does NOT increase WEATHERING? Flash floods
2. How does an increase in temperature increase the possibility of landslide activity?

It causes reduction in rock strength

Using Figure 5.2, determine the compressive strength if temperature is 21oC. Enter your answer as a NUMBER without words or units. **5000**

Using Figure 5.2, determine the tensile strength if temperature is 17oC. Enter your answer as a NUMBER without words or units **3500**

According to Figure 5.2, when there is an increase in temperature, a rock’s tensile strength decreases more rapidly than it’s compressive strength. (True/**False**)

Compared to temperature, precipitation has a far less complex effect on destabilization of slopes. (True/**False**)

The only rainfall information needed to determine magnitude and frequency of landslide activity are rainfall frequency and intensity. (**True**/False)

Using a period with glacial advance and retreat patterns, we can look at changes in landslide frequency and magnitude. (**True**/False)

From the years 1972-2007, Switzerland had the most damaging landslides and floods during the winter. (True/**False**)

NOT the purpose

To determine which climate metric has the greatest influence on the magnitude/frequency of landslides

This research affirms previous literature, finding that landslide frequency-area distribution curves represent the number of landslides occurring at different scales irrespective of landslide triggers. (True/False)