Lakepulse

Prasanna Sakalkar
Computer Engineering Department
School of Engineering and Technology
D Y Patil University, Pune, India
Prasannasakalkar0@gmail.com

Srushty Jagtap
Computer Engineering Department
School of Engineering and Technology
D Y Patil University, Pune, India
pandare2003@gmail.com

Pooja Pawar
Computer Engineering Department
School of Engineering and Technology
D Y Patil University, Pune, India
poojapp0409@gmail.com

Aditya Kumar Singh
Computer Engineering Department
School of Engineering and Technology
D Y Patil University, Pune, India
adityasingh112211@gmail.com

Pratik Kulkarni
Computer Engineering Department
School of Engineering and Technology
D Y Patil University, Pune, India
pratikkulkarni608@gmail.com

Abstract— There are many glaciers in the Indian Himalayas. lake, which could pose a serious threat downstream. community and serious economic and social disasters In the case of glacial lake flooding (GLOF), this is a study. First 0.05 km. in the Indian Himalayas Then remote sensing was used. These lakes have been assessed for hazards and risks.

Introduction

The Himalayas show widespread glacial shrinkage. The mass balance is extremely negative. And the most important thing is f Glacial river length has decreased (Cogley, 2016; Gardelle et al., 2011; Kaeb et al. 2012; Mouret Al., 2019; Sakai and Fujita, 2017; Yao et al., 2012) this snow trip as well. This creates many glacial lakes instead of ice. From Ice Tongue (King et al., 2017, 2018) Linsboret A.L. (2016) Predict the future occurrence of glacial lakes... Ice bed simulating the Himalayas topogra-phies and It has been documented that 5,000 pieces too deep may turn into snow... Chonburi has sporadic explosions in the unstable ice body. Killed thousands of people along with some important people. events in the Himalayas (Nie et al., 2018; Veh et al. al., 2018). Carriwick and Tweed (2016) compiled an inventory... Flooding and reported in the central Himalayas The highest cause was observed due to the frozen river.

From the scientific understanding of these phenomena The glacier lake flooding (GLOF) hypothesis can be formulated as GLOF occurring when water stored in a glacial lake. This is often behind ice, rocks, moraines, or natural dams. was released suddenly due to the failure of this dam.

hypothesis: "Glacial lake flooding (GLOFs) is significantly affected by instability of moraine dams or melting of glacial ice. This is intensified by global warming caused by climate change and increased glacial retreat. Events leading to severe flooding are becoming more frequent."

Arguments: Glacier Formation: Glaciers form during the retreat of glaciers. This creates a depression filled with melt water. These lakes tend to get bigger over time as glaciers continue to melt.

Mortar or Ice Dam Failure: Mortar or ice dam retains water in a frozen lake. If the dam becomes unstable due to erosion, snowmelt, or the weight of the water The dam may fail. Causing a huge explosion...

Climate change and global warming: Rising global temperatures are accelerating the melting of glaciers. and increasing the amount of water in the frozen lake This may increase pressure on the dam...

Event triggers: Dam failures can be triggered by factors such as rapid snowmelt, rainfall, or earthquakes. This may weaken the dam structure... Effects of GLOF: When GLOF occurs,

large volumes of water are released downstream. which may cause flooding Damage to infrastructure and create serious risks to nearby communities... Test the hypothesis: To test this hypothesis Researchers can: Analyze historical data about the retreat of glaciers and before the collapse of the moraine dam...

I. EASE OF USE

1. User-friendly interface Make Navigation Easier: Create a clear and simple navigation system. It has minimal visible labels and menus. Customizable Dashboard: Allows users to customize their own dashboard. So that they can quickly access the important features or information they need.
2. User Onboarding Interactive Tutorial: Provides step-by-step instructions when users log in for the first time. To make them familiar with the main features Tooltips and Help Prompts: Displays tooltips or small information icons. Next to the features for quick understanding
3. Responsive design Mobile Friendly: Make sure the system is fully responsive and runs smoothly on mobile devices or small screens. Customizable layout: Adjust layout based on screen size and resolution for a consistent experience.
4. Search and filter Search Bar: Use a global search bar that helps users quickly find files, features, or content. Advanced Filtering: Offers filtering options to help users narrow search results and access content efficiently.
5. Increasing work efficiency Fast Loading: Reduce loading times by optimizing images, scripts, and backend processes. Offline functionality: Some functionality has offline or archiving capabilities. This allows users to continue working without an internet connection.

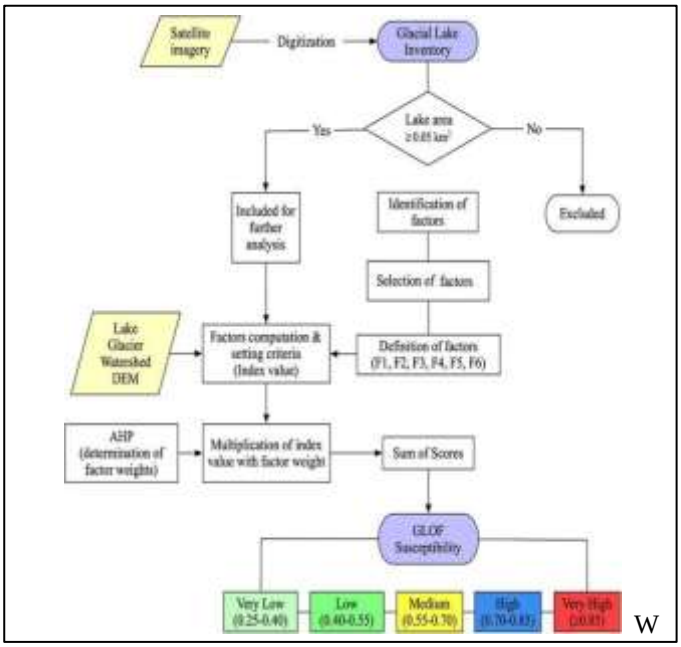
II. PREPARE YOUR PAPER BEFORE STYLING

1. Understand GLOFS topics/concepts Research a brief or topic: GLOFS might be a buzzword about a fashion, event, or editorial brief you're working on. Make sure you fully understand the theme or idea behind it. Analyze the mood and message: Is it avant-garde, casual chic, editorial, or something else? Is there a specific color, shade, or cultural influence? Set the atmosphere and message you want to communicate through the paper and style. Target audience: Consider who the end result is intended for. Fashion-focused documents will have different style options than those intended for a corporate or casual look.
2. Determine the purpose of the letter. Purpose of this article: The objective is to outline the editorial concept. fashion trend report Or style advice? Knowing this will affect the way you structure your preparation. Inform, entertain, or sell: Decide whether your goal is to inform (such as to trend), entertain (such as to tell a story), or sell (such as for a lookbook or campaign).
3. Research and collect reference images Visual Inspiration: Start by gathering images, sketches, mood boards, and color palettes that align with your GLOFS concept. This will help you visualize how the paper and design will work together. Look at existing styles: Consult similar documents or style guides to understand composition, tone, and visual appeal. Texture and Fabric Inspiration: If your paper involves fabric design Look for textures and materials that are consistent with your overall theme.
4. Sketch the structure of your paper. Introduction: Briefly introduce the topic and purpose of the report. body: Findings: Present the research, trends, or impacts you've collected for GLOFS topics. Style Tips: Provide style tips, mood boards, or fashion tips for this article. Viewing: Includes pictures

METHODOLOGY

The methodology for studying glacial lake outbreak flooding (GLOF) involves collecting field data. remote sensing modeling and risk assessment techniques to understand what causes such events. Possible effects and how to reduce the risk
1. Identification and monitoring of glacial lakes Field Survey: Field trip to a frozen river lake and collect information on lake size, depth, dam characteristics (morain, ice, rocks), and other physical features such as cracks, cracks, or movement in the moraine dam... Remote sensing: Uses satellite imagery (such as Landsat, Sentinel) and aerial imagery to track the location, shape, and changes of glacial lakes over time. This allows for regular inspections without the need for frequent site visits. This can be logistically difficult. GPS and GIS mapping: Use geographic information systems (GIS) tools to create accurate maps of glacial lakes, watersheds, and surrounding terrain. GIS can track changes over time. and provide high-resolution spatial data for risk modeling.
2. Assessment of the stability of glacial lakes and dams Mortar/Ice Dam Analysis: Evaluate the stability of natural dams after dams are built on lakes. Important factors include the thickness and structure of the moraine. snow melt rate and the degree of erosion or failure (such as slowing or slowing of water flow through the moraine)...
Hydrological monitoring: Sensors installed to measure water level, flow rate, and water temperature in Glacier River Lake. These measurements help determine how water accumulates. and provide early warning of possible overflows or failures.
Freezing data: Collect information about glacier changes, such as glacier movement...

Figure 1: Data Flow diadram for Glofs



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RESULTS

Glacial lake overflow flooding (GLOF) studies generally focus on understanding the occurrence, frequency, and potential impacts of these events. Results based on data collection, monitoring and modeling can provide important insights into glacial lake behavior, stability and hazards associated with GLOF.

1. Classification of weak glacial lakes Number and location of glaciers: Studies can reveal how many glaciers exist in a region. The location of the glacier and whether an eruption is likely or not. Highlands or glaciers may have many lakes. Many of which were never known before or were difficult to verify due to Go to a distant place… Glacial Lake

Characteristics: Identify key characteristics such as lake size depth, volume, and type of dam (morain, ice, or rock) that wil help determine the risk of dam failure.

For example, a large lake with a thin moraine dam. There is high risk of being penetrated. Rate of glacier retreat: Result may show a relationship between the rate of glacier retreat an glacier formation or growth. This indicates that rapid meltin due to climate change could lead to larger and more unstabl glaciers...

2 . Dam stability and risk of collapse Mortar and ice dar assessment: Results can determine whether the moraine or ic dam is stable. It shows evidence of erosion, cracking, c seepage in cases where the inscription is weak or if the ic dam is rapidly melting. The risk of perforation is much highe

Flooding from glacial river lake outbreaks (GLOFs) represents a major natural hazard. This is especially true in areas where glaciers are retreating due to climate change. These catastrophic events occur when natural dams (Made of enamel, ice, or stone) The body of ice normally made from meltwater suddenly collapses. and releases large amounts of water quickly Key findings from GLOF's research include:

Climate change is the main driver: Rising global temperatures are causing glaciers to shrink rapidly. Increasing the size of glacial lakes and puts additional pressure on moraines and ice dams. This makes GLOFs more likely. Especially in the Himalayas. Andes Mountains and other high mountains high glacier Vulnerability of communities and infrastructure: The increasing frequency and severity of GLOF pose serious risks to downstream communities. Infrastructure and Ecosystems Vulnerability mapping and flood modeling results highlight the need for targeted risk assessments in areas with large glacial lakes and unstable dam structures.

The need for comprehensive risk management: The study emphasizes the importance of an integrated risk management strategy. Including an early warning system structural relief (strengthening controlled spillways or building buildings) and community preparedness.

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