LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de l'Économie

Le Ministre de l'Économie,

Vu la loi du 20 juillet 1992 portant modification du régime des brevets d'invention, telle que modifiée ;

Vu le règlement grand-ducal du 17 novembre 1997 concernant la procédure et les formalités administratives en matière de brevets d'invention ;

Vu le dépôt de la demande de brevet luxembourgeois daté du : **03/12/2021 ;**

Arrête :

Art. 1er.- Il est délivré à la (aux) personne(s) mentionnée(s) sur le tableau des données bibliographiques attaché au présent arrêté, sous le numéro de code 73, un

BREVET D'INVENTION N° LU500954

pour : Method and System for Identifying Mountain Flood and Sediment Disaster-prone Areas
tel que décrit dans les duplicata des pièces techniques joints en annexe.

Art. 2.- Le brevet est délivré sans examen préalable de la brevetabilité de l'invention, sans garantie de l'exactitude de la description et aux risques et périls des demandeurs.

Art. 3.- Le présent arrêté, qui constitue le titre de protection, est expédié au(x) mandataire(s) agréé(s), mentionné(s) sur le tableau des données bibliographiques attaché au présent arrêté, sous le numéro de code 74 ou, à défaut, à la (aux) personne(s) visées(s) à l'article 1er, pour servir de document probant à celle(s)-ci.

Luxembourg, le **03/06/2022**

Pour le Ministre de l'Économie,

Corinne Müller
Attachée
Office de la propriété intellectuelle

(19) LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
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(54) **Method and System for Identifying Mountain Flood and Sediment Disaster-prone Areas.**

(57) The invention discloses a method and system for identifying mountain flood and sediment disaster-prone areas, which comprises the following steps: step 1, establishing a three-dimensional model of change trend; step 2, determining the acquisition of basic data; step 3, evaluating the possible disaster probability and estimated disaster severity level of each region; and step 4, outputting results and marking maps. The system comprises a data acquisition module, a comprehensive analysis module, a determination output module and a data storage module. On the basis of river flow state and riverbed, the invention identifies the disaster-prone areas by combining topography, geomorphology and geological soil, which meets the requirement of judging mountainous areas with few rivers, and greatly increases the scope of application. By marking and sending the identification output results by map partition, relevant departments can inform residents to take precautions in time, greatly reducing the loss caused by disasters.

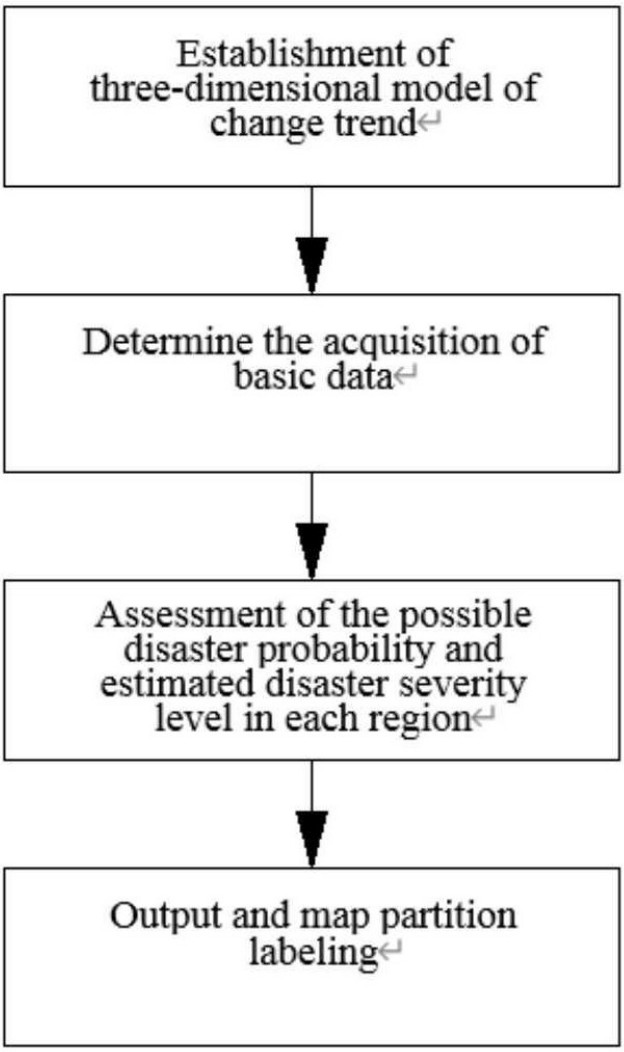

FIG. 1

LU500954

DESCRIPTION

Method and System for Identifying Mountain Flood and Sediment Disaster-prone Areas

TECHNICAL FIELD

The invention relates to the technical field of disaster-prone areas identification, in particular to a method and a system for identifying disaster-prone areas of mountain torrents and sediments.

BACKGROUND

Mountain torrent disaster refers to the flood disaster caused by rainfall in hilly areas, mudslides and landslides caused by mountain torrents, which cause losses to the national economy and people's lives and property. It is characterized by suddenness, concentrated water volume and great destructive power. The combined action of storm flood and sediment will aggravate the adjustment of local siltation and blockage in gully beds, and the water level will increase sharply, causing extensive siltation, inundation and erosion, thus causing heavy casualties and property losses.

At present, mountain flood and sediment disaster-prone areas are judged only by the water flow state and riverbed of local rivers, and mountain flood and sediment disasters are also caused by long-term rainstorm scouring in some mountainous areas with less rivers and soft soil. The existing judging methods can not be used for judging mountain flood and sediment disaster-prone areas with less rivers, and their use has certain limitations. Therefore, the invention proposes a method and system for identifying mountain flood and sediment disaster-prone areas to solve the problems existing in the prior art.

SUMMARY

In view of the above problems, the objective of the present invention is to propose a method and system for identifying mountain flood and sediment disaster-prone areas. The method and system for identifying mountain flood and sediment disaster-prone areas can identify the disaster-prone areas on the basis of river flow state and riverbed, combining topography, geomorphology and geological soil, so as to meet the requirements of identifying mountainous areas with few rivers,

and greatly increase the scope of application. By marking and sending the identification output results by map partition, relevant departments can timely inform residents to take precautions. The disaster loss is greatly reduced, and the identification system combines satellite remote sensing images and electrical exploration technology to acquire data, so that the acquired data is more comprehensive and accurate, and the accuracy of identification and judgment output results is increased.

In order to realize the objective of the invention, the invention is realized by the following technical scheme: a method for identifying mountain flood and sediment disaster-prone areas comprises the following steps:

step 1, acquiring information of topography and river flow direction of the area to be discriminated based on satellite remote sensing image technology, and establishing a three-dimensional model of topography and river change trend in combination with historical data;

step 2, detecting and acquiring geological data and soil quality data of the area to be discriminated, acquiring basic information of rivers by using electrical prospecting technology, and then retrieving local rainfall information data over the years to obtain the judged basic data;

step 3, sorting out the basic data judged in step 2, and combining with the three-dimensional model of change trend in step 1, evaluating the disaster possibility of the area to be discriminated, so as to obtain the probability of possible disaster and the estimated severity level of disaster in each area; and

step 4, according to the possible disaster probability and the estimated disaster severity assessment results, divide and mark the blocks on the map, and output the results to the local regulatory authorities for prevention.

The further improvement is that the basic information of rivers in the step 2 includes water flow velocity, water sediment concentration, riverbed height and river diversion change degree, and the rainfall information data includes annual precipitation, days of rainfall above heavy rain and rainfall period.

The further improvement is that the evaluation method in step 3 specifically

brings the judged basic data into the three-dimensional model of change trend to simulate the trend of disaster probability change caused by the change of topography and river flow when the area encounters heavy rainfall and bad weather, and then evaluates the disaster probability caused by the change of river basic information in normal period, and combines the two statistics to predict the disaster probability and disaster severity.

A system for identifying mountain flood and sediment disaster-prone areas comprises a data acquisition module, a comprehensive analysis module, a judgment output module and a data storage module, wherein the data storage module is used for acquiring topographic and geomorphic information, geological and soil data, basic river information and rainfall information data over the years of areas to be discriminated, and the comprehensive analysis module is used for sorting out the acquired data and carrying out comprehensive analysis and evaluation. The judgment output module is use for marking that partition on the map accord to the output result of the comprehensive analysis module and sending the map data to relevant departments, and the data storage module is used for store the judgment data, the judgment result and the appraiser information.

The further improvement is that: the data acquisition module includes terrain and geomorphology acquisition submodule, river basic information acquisition submodule, geological soil data acquisition submodule and rainfall information data retrieval submodule;

the topography and geomorphology acquisition submodule is a structural model for acquiring a region to be discriminated based on satellite remote sensing image technology;

the river basic information acquisition submodule is to acquire information data of water flow velocity, water sediment concentration and riverbed height of rivers based on electrical exploration technology, and to acquire data of river diversion change degree through satellite remote sensing image technology combined with historical river channel position;

the geological soil data acquisition submodule is use for acquiring geological

information of that area to be judged and basic information of the soil;

the rainfall information data retrieval submodule is used to obtain the historical annual rainfall, the number of days of rainfall above heavy rain and the rainfall time period data of the area to be discriminated.

The further improvement is that the comprehensive analysis module includes a data sorting submodule, a data comparative analysis submodule and a comprehensive evaluation submodule, wherein the data sorting submodule is used for sorting out various data obtained by the data acquisition module and extracting important data; the data comparison submodule is used for comparing and analyzing the sorted and extracted data with the corresponding data in the area where mountain flood and sediment disasters have occurred; the comprehensive evaluation submodule is used to obtain the prediction results of disaster rate and severity.

The further improvement is that the data storage module includes a data partition storage submodule and an evaluation and prediction information storage submodule, wherein the data partition storage submodule stores the judgment basic data for evaluation and prediction, and the evaluation and prediction information storage submodule is used to store the evaluation and prediction results and the information of participants together.

The method of the invention has the beneficial effects that the disaster-prone areas are identified by combining topography and geological soil on the basis of river flow state and riverbed, so as to meet the requirement of identifying mountainous areas with few rivers, and the application range is greatly increased; by marking and sending the identification output results by map partition, relevant departments can inform residents to take precautions in time, greatly reducing the loss caused by disasters; and the identification system combines satellite remote sensing images and electrical exploration technology to obtain data, so that the obtained data is more comprehensive and accurate, and the accuracy of the identification output results is increased.

BRIED DESCRIPTION OF THE FIGURES

FIG. 1 is a flow chart of a method according to an embodiment of the present

invention.

FIG. 2 is a system architecture diagram of the second embodiment of the present invention.

FIG. 3 is a system architecture diagram of the third embodiment of the present invention.

DESCRIPTION OF THE INVENTION

In order to deepen the understanding of the present invention, the present invention will be described in further detail below with examples, which are only used to explain the present invention and do not limit the scope of protection of the present invention.

Example 1

As shown in FIG. 1, this embodiment provides a method for identifying mountain flood and sediment disaster-prone areas, which includes the following steps:

step 1, acquiring information of topography and river flow direction of the area to be discriminated based on satellite remote sensing image technology, and establishing a three-dimensional model of topography and river change trend in combination with historical data;

step 2, detecting and acquiring geological data and soil quality data of the area to be discriminated, acquiring basic information of rivers by using electrical exploration technology, including water flow velocity, sediment concentration of water body, riverbed height and change degree of river diversion, and then calling local rainfall information data over the years, including annual precipitation, days of rainfall above heavy rain and rainfall time period, to obtain basic data for judgment;

Step 3, sorting out the basic data judged in step 2, and combining with the three-dimensional model of change trend in step 1, evaluating the disaster possibility of the area to be discriminated, so as to obtain the probability of possible disaster and the estimated severity level of disaster in each area;

specifically, the evaluation method is to bring the judgment basic data into the three-dimensional model of change trend to simulate the change trend of disaster probability caused by the change of topography and river flow when the area

encounters heavy rainfall and bad weather, and then to evaluate the disaster probability caused by the change of river basic information in normal period, and to combine the two statistics to predict the disaster probability and disaster severity; and

step 4, according to the possible disaster probability and the estimated disaster severity assessment results, divide and mark the blocks on the map, and output the results to the local regulatory authorities for prevention, thus greatly reducing the disaster losses.

Example 2

As shown in FIG. 2, this embodiment provides an identification system for mountain flood and sediment disaster-prone areas, which includes a data acquisition module, a comprehensive analysis module, a judgment output module and a data storage module, wherein the data storage module is used for acquiring topographic and geomorphic information, geological and soil data, basic river information and rainfall information data over the years of the area to be discriminated, so that the data is more comprehensive, and the application range of the method system is increased. The comprehensive analysis module is used to sort out the acquired data and make comprehensive analysis and evaluation; the judgment output module is used to mark the map by districts according to the output results of the comprehensive analysis module and send the map data to relevant departments; satellite remote sensing images and electrical prospecting technology are combined to acquire data, so that the acquired data is more comprehensive and accurate, and the accuracy of identifying the judgment output results is increased; and the data storage module is used to store the judgment data, judgment results and appraiser information.

The data acquisition module includes terrain and landform acquisition submodule, river basic information acquisition submodule, geological and soil data acquisition submodule and rainfall information data retrieval submodule;

The topography and geomorphology acquisition submodule is a structural model for acquiring a region to be discriminated based on satellite remote sensing image technology;

the river basic information acquisition submodule is to acquire information data

of water flow velocity, water sediment concentration and riverbed height of rivers based on electrical exploration technology, and to acquire data of river diversion change degree through satellite remote sensing image technology combined with historical river channel position;

the geological soil data acquisition submodule is use for acquiring geological information of that area to be judged and basic information of the soil;

the rainfall information data retrieval submodule is used to obtain the historical annual rainfall, the number of days of rainfall above heavy rain and the rainfall time period data of the area to be discriminated.

On the basis of river flow state and riverbed, the vulnerable areas can be identified by combining topography, geomorphology and geological soil, which can meet the requirements of identifying mountainous areas with few rivers, and the scope of application is greatly increased.

The comprehensive analysis module includes a data sorting submodule, a data comparative analysis submodule and a comprehensive evaluation submodule, wherein the data sorting submodule is used for sorting out various data obtained by the data acquisition module and extracting important data; the data comparison submodule is used for comparing and analyzing the sorted and extracted data with the corresponding data in the area where mountain flood and sediment disasters have occurred; the comprehensive evaluation submodule is used to obtain the prediction results of disaster rate and severity.

The data storage module includes a data partition storage submodule and an evaluation and prediction information storage submodule, wherein the data partition storage submodule stores the judgment basic data for evaluation and prediction, and the evaluation and prediction information storage submodule is used to store the evaluation and prediction results together with the information of participants.

Example 3

As shown in FIG. 3, this embodiment provides an identification system of mountain flood and sediment disaster-prone areas, which includes a data acquisition module, a comprehensive analysis module, a judgment output module and a data

storage module, wherein the data storage module is used to acquire the topography information, geological soil data, basic river information and rainfall information data of the area to be discriminated, and the comprehensive analysis module is used to sort out the acquired data and conduct comprehensive analysis and evaluation. The judgment output module is use for marking that map by partition and sending the map data to relevant departments according to the output result of the comprehensive analysis module, and the judgment output module comprise a data sending module, wherein the data sending module is used for sending the judgment marked map to all users in the area for viewing by users, actively cooperating with relevant local departments to take preventive measures, effectively talking about the losses caused by disasters, and combining satellite remote sensing images and electrical exploration technology to obtain data, The acquired data is more comprehensive and accurate, and the accuracy of identifying the judgment output result is increased; and the data storage module is used for storing the judgment data, the judgment result and the appraiser information.

The data acquisition module includes terrain and landform acquisition submodule, river basic information acquisition submodule, geological and soil data acquisition submodule and rainfall information data retrieval submodule;

the topography and geomorphology acquisition submodule is a structural model for acquiring a region to be discriminated based on satellite remote sensing image technology;

the river basic information acquisition submodule is to acquire information data of water flow velocity, water sediment concentration and riverbed height of rivers based on electrical exploration technology, and to acquire data of river diversion change degree through satellite remote sensing image technology combined with historical river channel position;

the geological soil data acquisition submodule is use for acquiring geological information of that area to be judged and basic information of the soil;

the rainfall information data retrieval submodule is used to obtain the historical annual rainfall, the number of days of rainfall above heavy rain and the rainfall time

period data of the area to be discriminated.

The comprehensive analysis module includes a data sorting submodule, a data comparative analysis submodule and a comprehensive evaluation submodule, wherein the data sorting submodule is used for sorting out various data obtained by the data acquisition module and extracting important data; the data comparison submodule is used for comparing and analyzing the sorted and extracted data with the corresponding data in the area where mountain flood and sediment disasters have occurred; the comprehensive evaluation submodule is used to obtain the prediction results of disaster rate and severity.

The data transmission module transmit that decision marker map through Ethernet, 3G network, 4G network and 5G network, and the data transmission module transmit the decision marker map to the local user equipment including television, computer and mobile communication equipment.

The data storage module includes a data partition storage submodule and an evaluation and prediction information storage submodule, wherein the data partition storage submodule stores the judgment basic data for evaluation and prediction, and the evaluation and prediction information storage submodule is used to store the evaluation and prediction results together with the information of participants.

The above embodiments show and describe the basic principle, main features and advantages of the present invention. Those of ordinary skill in the technique should know that the present invention is not limited by the above-mentioned embodiments. What is described in the above-mentioned embodiments and descriptions only illustrate the principles of the present invention. Without departing from the spirit and scope of the present invention, there will be various changes and improvements of the present invention, which all fall within the scope of the claimed invention. The scope of protection claim by that present invention is defined by the append claims and their equivalents.

CLAIMS

1. A method for identifying mountain flood and sediment disaster-prone areas is characterized by comprising the following steps:

step 1, acquiring information of topography and river flow direction of the area to be discriminated based on satellite remote sensing image technology, and establishing a three-dimensional model of topography and river change trend in combination with historical data;

step 2, detecting and acquiring geological data and soil quality data of the area to be discriminated, acquiring basic information of rivers by using electrical prospecting technology, and then retrieving local rainfall information data over the years to obtain the judged basic data;

step 3, sorting out the basic data judged in step 2, and combining with the three-dimensional model of change trend in step 1, evaluating the disaster possibility of the area to be discriminated, so as to obtain the probability of possible disaster and the estimated severity level of disaster in each area; and

step 4, according to the possible disaster probability and the estimated disaster severity assessment results, divide and mark the blocks on the map, and output the results to the local regulatory authorities for prevention.

2. The method for identifying mountain flood and sediment disaster-prone areas according to claim 1 is characterized in that the basic information of rivers in the step 2 includes water flow velocity, water sediment concentration, riverbed height and river diversion change degree, and the rainfall information data includes annual precipitation, days of rainfall above heavy rain and rainfall period.

3. The method for identifying mountain flood and sediment disaster-prone areas according to claim 1 is characterized in that the evaluation method in step 3 specifically brings the judged basic data into the three-dimensional model of change trend to simulate the trend of disaster probability change caused by the change of topography and river flow when the area encounters heavy rainfall and bad weather, and then evaluates the disaster probability caused by the change of river basic information in normal period, and combines the two statistics to predict the disaster

probability and disaster severity.

4. A system for identifying mountain flood and sediment disaster-prone areas is characterized by comprising a data acquisition module, a comprehensive analysis module, a judgment output module and a data storage module, wherein the data storage module is used for acquiring topographic and geomorphic information, geological and soil data, basic river information and rainfall information data over the years of areas to be discriminated, and the comprehensive analysis module is used for sorting out the acquired data and carrying out comprehensive analysis and evaluation; the judgment output module is use for marking that partition on the map accord to the output result of the comprehensive analysis module and sending the map data to relevant departments, and the data storage module is used for store the judgment data, the judgment result and the appraiser information.

5. The system for identifying mountain flood and sediment disaster-prone areas according to claim 4 is characterized in that the data acquisition module includes terrain and geomorphology acquisition submodule, river basic information acquisition submodule, geological soil data acquisition submodule and rainfall information data retrieval submodule;

the topography and geomorphology acquisition submodule is a structural model for acquiring a region to be discriminated based on satellite remote sensing image technology;

the river basic information acquisition submodule is to acquire information data of water flow velocity, water sediment concentration and riverbed height of rivers based on electrical exploration technology, and to acquire data of river diversion change degree through satellite remote sensing image technology combined with historical river channel position;

the geological soil data acquisition submodule is use for acquiring geological information of that area to be judged and basic information of the soil;

the rainfall information data retrieval submodule is used to obtain the historical annual rainfall, the number of days of rainfall above heavy rain and the rainfall time period data of the area to be discriminated.

6. The system for identifying mountain flood and sediment disaster-prone areas according to claim 4 is characterized in that the comprehensive analysis module includes a data sorting submodule, a data comparative analysis submodule and a comprehensive evaluation submodule, wherein the data sorting submodule is used for sorting out various data obtained by the data acquisition module and extracting important data; the data comparison submodule is used for comparing and analyzing the sorted and extracted data with the corresponding data in the area where mountain flood and sediment disasters have occurred; the comprehensive evaluation submodule is used to obtain the prediction results of disaster rate and severity.

7. The system for identifying mountain flood and sediment disaster-prone areas according to claim 4 is characterized in that the data storage module includes a data partition storage submodule and an evaluation and prediction information storage submodule, wherein the data partition storage submodule stores the judgment basic data for evaluation and prediction, and the evaluation and prediction information storage submodule is used to store the evaluation and prediction results and the information of participants together.

PATENTANSPRÜCHE

1. Ein Verfahren zur Identifizierung von Gebieten voller Hochwasser und Mure ist dadurch gekennzeichnet, dass das die folgenden Schritte umfasst:

Schritt 1: Erhalten von Informationen über die Topografie und die Fließrichtung des Flusses im zu untersuchenden Gebiet auf der Grundlage von Satelliten und Fernerkundung, und Erstellung eines dreidimensionalen Modells des Veränderungstrends der Topographie und des Flusses mit Hilfe von historischen Daten;

Schritt 2: Ermittlung und Erfassung von geologischen Daten und Bodendaten im zu untersuchenden Gebiet, Erhalten grundlegender Informationen über die Flüsse mit Hilfe der elektrischen Prospektion und anschließenden Abrufen lokaler Niederschlagsdaten im Laufe der Jahre, um die zu beurteilenden Basisdaten zu erhalten;

Schritt 3, Sortieren der in Schritt 2 zu beurteilenden Basisdaten und Schätzung der Wahrscheinlichkeit von Katastrophen im zu untersuchenden Gebiet mit Hilfe des dreidimensionalen Modells der Veränderungstendenz in Schritt 1, um die Wahrscheinlichkeit der möglichen Katastrophe und den Katastrophegrad in jedem Gebiet zu erhalten; und

Schritt 4: Entsprechend der Wahrscheinlichkeit der Katastrophen und der Katastrophegrad werden die Gebiete auf der Karte eingeteilt und markiert, und die Ergebnisse werden an die örtlichen Aufsichtsbehörden zur Prävention weitergeleitet.

2. Das Verfahren zur Identifizierung von Gebieten voller Hochwasser und Mure nach Anspruch 1 ist dadurch gekennzeichnet, dass in Schritt 2 die grundlegenden Informationen über Flüsse die Fließgeschwindigkeit, die Sedimentkonzentration im Wasser, die Höhe des Flussbetts und den Veränderungsgrad der Flussumleitung umfassen, und dass die Informationsdaten über Niederschlag den Jahresniederschlag, die Tage mit Niederschlägen über Starkregen und die Niederschlagsperiode umfassen.

3. Das Verfahren zzur Identifizierung von Gebieten voller Hochwasser und Mure nach Anspruch 1 ist dadurch gekennzeichnet, dass in Schritt 3 das Bewertungsverfahren wie folgt ist: die zu beurteilenden Basisdaten in das dreidimensionale Modell des

Veränderungstrends einbringen, um starke Regenfälle und schlechtes Wetter zu simulieren, die Wahrscheinlichkeit der von Veränderung der Topographie und des Flusslaufs verursachten Katastrophen bewerten, dann die alltägliche Wahrscheinlichkeit der von Veränderung der Topographie und des Flusslaufs verursachten Katastrophen bewerten, die beiden Statistiken kombinieren, um die Wahrscheinlichkeit und das Ausmaß der Katastrophe vorherzusagen.

4. Ein System zur Identifizierung von Gebieten voller Hochwasser und Mure ist dadurch gekennzeichnet, dass es ein Datenerfassungsmodul, ein Analysemodul, ein Beurteilungsausgabemodul und ein Datenspeichermodul umfasst; das Analysemodul dient der Sortierung der erfassten Daten und der umfassenden Analyse und der Auswertung; das Beurteilungsausgabemodul dient zur Markierung des Bereichs auf der Karte entsprechend dem Ergebnis des Moduls für die umfassende Analyse und zur Übermittlung der Kartendaten an die zuständige Behörde, und das Datenspeichermodul wird zur Speicherung der Beurteilungsdaten, des Beurteilungsergebnisses und der Beurteilerinformationen verwendet.

5. Das System zur Identifizierung von Gebieten voller Hochwasser und Mure nach Anspruch 4 ist dadurch gekennzeichnet, dass das Datenerfassungsmodul ein Untermodul zur Erfassung von Gelände und Topographie, ein Untermodul zur Erfassung von Grundinformationen über Fluss, ein Untermodul zur Erfassung von geologischen Bodendaten und ein Untermodul zur Abrufen von Niederschlagsdaten umfasst;

das Untermodul zur Erfassung von Gelände und Topographie erhält ein Strukturmodell für die zu untersuchende Region auf der Grundlage von Satelliten-Fernerkundung;

das Untermodul zur Erfassung von Grundinformationen über Fluss dient der Erfassung von Daten über die Fließgeschwindigkeit, die Sedimentkonzentration und die Höhe des Flussbetts auf der Grundlage der elektrischen Erkundungstechnologie und der Erfassung von Daten über den Grad der Umleitung von Flüssen durch Satelliten-Fernerkundung mithilfe der historischen Position des Flusskanals;

das Untermodul zur Erfassung geologischer Bodendaten dient der Erfassung geologischer Informationen über das zu beurteilende Gebiet und grundlegender Informationen über den Boden;

das Untermodul für den Abrufen von Niederschlagsdaten wird verwendet, die historische jährliche Niederschlagsmenge, die Anzahl der Tage mit Niederschlägen über Starkregen und die Niederschlagszeiträume des zu untersuchenden Gebiets zu ermitteln.

6. Das System zur Identifizierung von Gebieten voller Hochwasser und Mure nach Anspruch 4 ist dadurch gekennzeichnet, dass das Analysemodul ein Untermodul zur Datensortierung, ein Untermodul zur Analyse von Datenvergleich und ein Untermodul zur umfassenden Auswertung umfasst, wobei das Untermodul für die Datensortierung dazu dient, verschiedene vom Datenerfassungsmodul erhaltene Daten zu sortieren und wichtige Daten zu extrahieren; das Untermodul zum Datenvergleich dient dem Vergleich und der Analyse der sortierten und extrahierten Daten mit den entsprechenden Daten in dem Gebiet, in dem es zu Hochwasser und Sedimentkatastrophen gekommen ist; das Untermodul für die umfassende Bewertung wird verwendet, um die Vorhersageergebnisse der Katastrophenrate und des Ausmaßes zu erhalten.

7. Das System zur Identifizierung von Gebieten voller Hochwasser und Mure nach Anspruch 4 ist dadurch gekennzeichnet, dass das Datenspeichermodul ein Untermodul zur Speicherung von Datenpartitionen und ein Untermodul zur Speicherung von Bewertungs- und Vorhersageinformationen umfasst, wobei das Untermodul für die Datenpartitionierung die Beurteilungsgrunddaten für die Auswertung und Vorhersage speichert, und das Untermodul für die Speicherung von Bewertungs- und Prognoseinformationen wird verwendet, um die Bewertungs- und Prognoseergebnisse und die Informationen der Teilnehmer zu speichern.

FIGURES

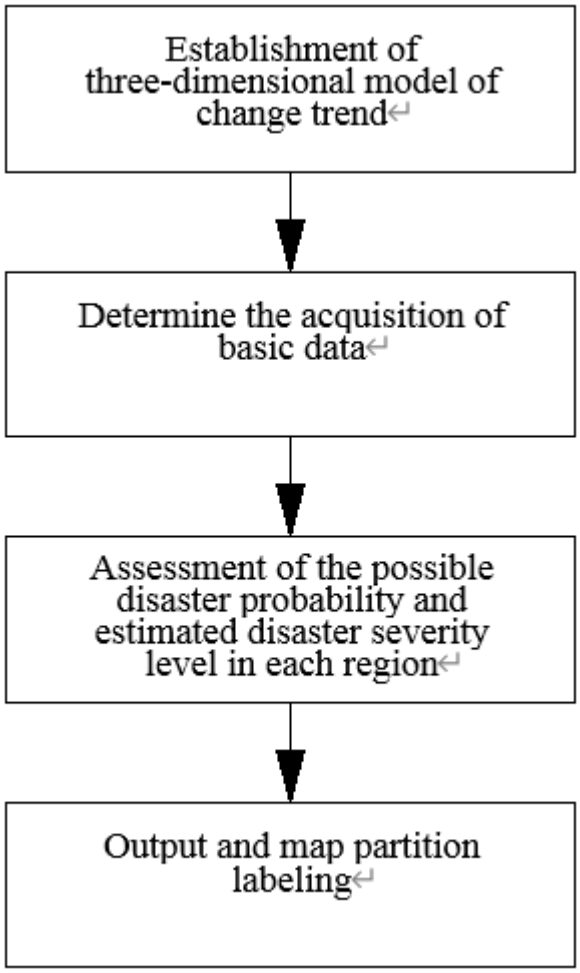

FIG. 1

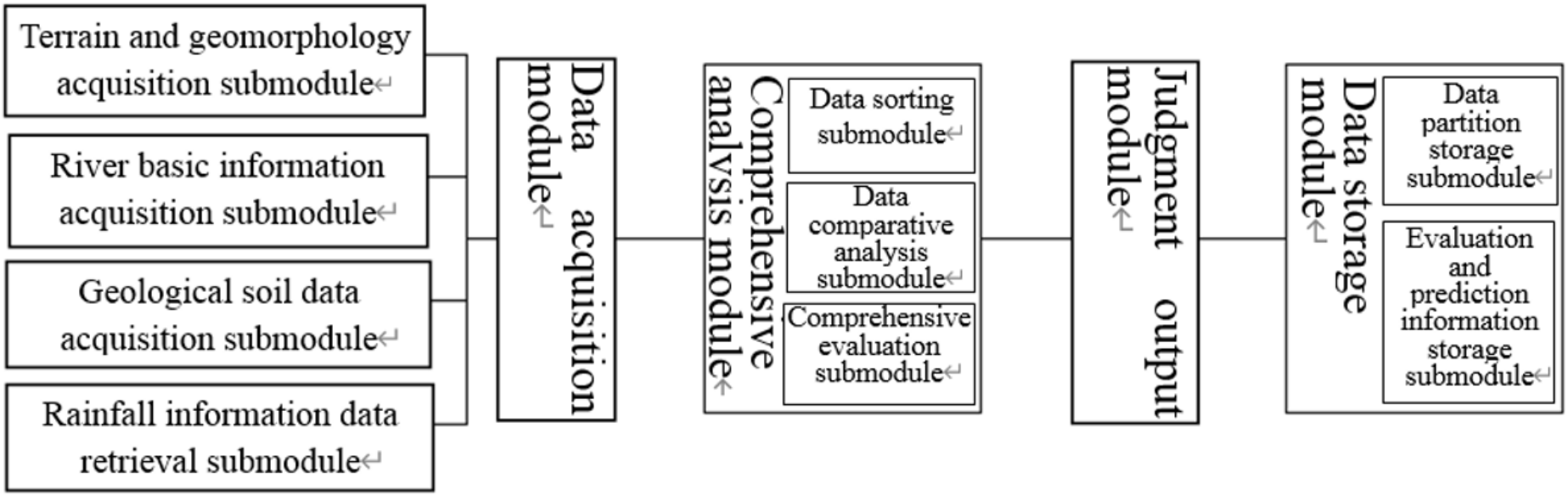
Terrain and geomorphology acquisition submodule
River basic information acquisition submodule
Geological soil data acquisition submodule
Rainfall information data retrieval submodule
Data acquisition module
Comprehensive analysis module
Data sorting submodule
Data comparative analysis submodule
Comprehensive evaluation submodule
Judgment output module
Data storage module
Data partition storage submodule
Evaluation and prediction information storage submodule

FIG. 2

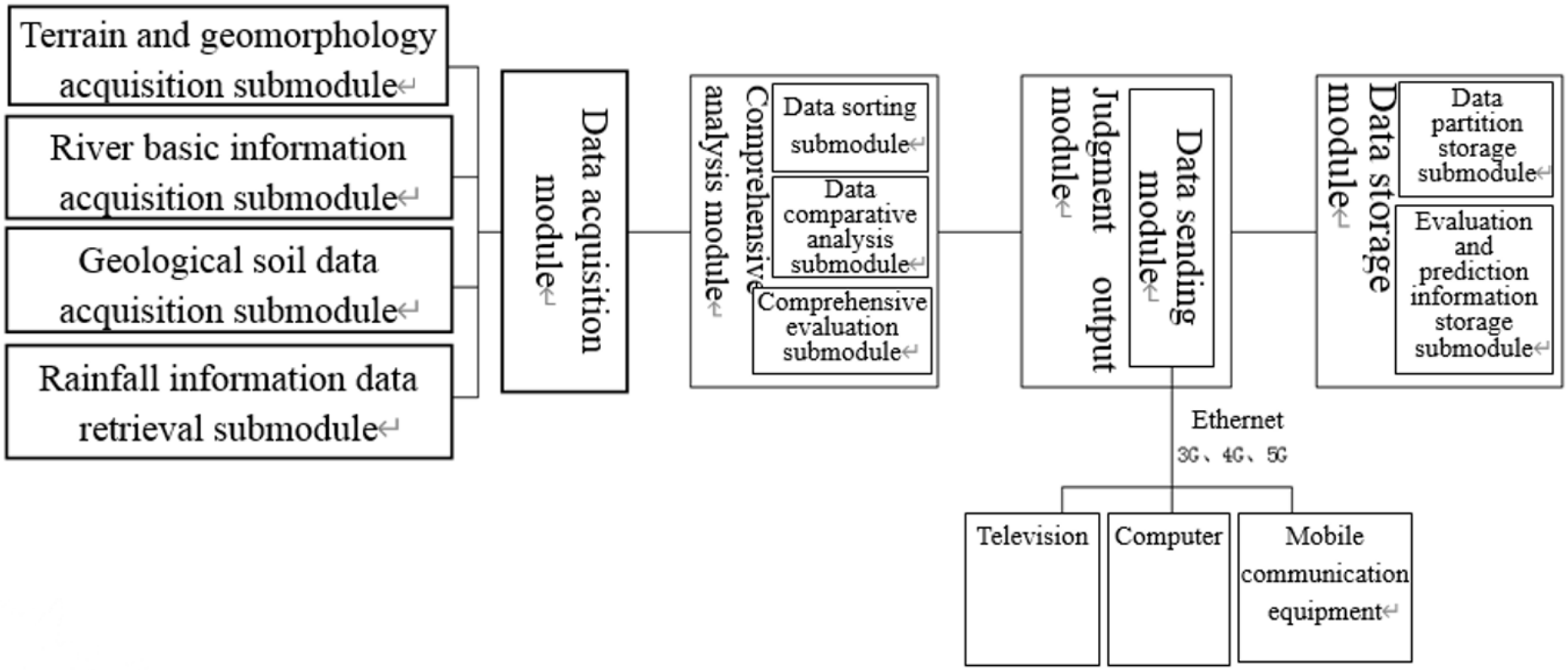
Terrain and geomorphology acquisition submodule
River basic information acquisition submodule
Geological soil data acquisition submodule
Rainfall information data retrieval submodule
Data acquisition module
Comprehensive analysis module
Data sorting submodule
Data comparative analysis submodule
Comprehensive evaluation submodule
Judgment output module
Data sending module
Ethernet
3G、4G、5G
Television
Computer
Mobile communication equipment
Data storage module
Data partition storage submodule
Evaluation and prediction information storage submodule

FIG. 3