

Research on man-machine interface in remote control of operating machine

Budgeted: Grants for operating expenses

River account

Research Period: FS2003–2006

Research Team: Advanced Technology

Author: YAMAMOTO Hiroshi

YAMAGUCHI Takashi

ISHIMATSU Yutaka

Abstract:

For constructions in dangerous area, remote control type operating machine is effective. In the past, technical development has been progressed as can be seen in the case of unmanned construction system in Unzen Fugen-Dake, however, operation efficiency is 40% lower than that of people attended cases. Quality of methods to transmit information regarding operation situations of machines (positions between machines and operation targets, situations of operation target, etc.) have been always one of the major factors that influences on efficiency or applicability of remote control operations.

Therefore, in this research, we will organize and analyze existing case examples and operation information necessary for remote control and will examine methods of transmission and display of information (man-machine interface), then will arrange their design methods.

Keywords: unmanned construction system, remote control, man-machine interface, construction machine, three-dimensional information

Research on methods to evaluate performance of drainage pumping station that uses
CFD

Budget: Grants for operating expenses
General account
Research Period: FS2003–2006
Research Team: Advanced Technology
Author: YAMAMOTO Hiroshi
KAWAKITA Kenji

Abstract:

Drainage pumping station has suction sump, which is for leading water to the main pump smoothly. It is necessary to examine shape and size of the suction sump, so as not to cause disorder of harmful water flow. Regarding a pump of which flow quantity per machine is 10m³/s or less, standard form and size of its suction sump are specified in the “Design guideline of lift drain pump equipment (draft)”. However, when using pumps with more than 10m³/s flow quantity, or pumps with shapes that are not described in “Design guideline of lift drain pump equipment (draft)”. However, it is necessary to check the possibility of occurrence of vortex that is harmful to the pumping operation by small scale model experiments. This needs a large sum of cost and time. On the other hand, CFD (Computational Fluid Dynamics) analysis is upgrading thanks to improvement of computer performance and analysis technology, and is being used for design assessment of various fluid-related equipment or facilities nowadays. If this CFD analysis is introduced to design assessment of the suction sump, performance prediction becomes possible to some degree even without model experiments. If the performance assessment of nonstandard suction sump becomes easy, examination on the purchaser side becomes possible and the purchaser can estimate performance improvement level of drainage operation of existing plant. This leads to efficient planning with high B/C. This research examines performance evaluation method for suction sump in the drainage pumping station that uses CFD analysis.

Keywords: drainage pumping station, suction sump, model experiment, air entraining vortex, CFD

A study on the climatic condition where concrete structures was actually exposed

Budgeted: Grants for operating expenses

General account

Research Period: FS2004–2006

Research Team: Structure Management
Technology

Author: WATANABE Hiroshi

KOGA Hirohisa

Abstract:

Though there are many research reports relating to the durability of concrete and concrete structures in severe environment, there is not much information relating to the durability of concrete structures in common environment. It makes difficult to evaluate the performance over time of concrete structures when the dominant deterioration process can not be predicted. Accordingly, PWRI and 22 research partners placed common concrete specimens in various places in Japan to investigate the long-term change of performance of concrete. In this research project, micro climate of exposure sites were surveyed and various tests for concrete were carried out with specimens that had been exposed in sites for one/two year(s). Obtained data show some relationship between exposure condition and strength of concrete. It also shows that carbonation thickness can vary with the location of concrete specimens.

Key words: concrete, durability, compressive strength, bending strength, carbonation thickness, water content ratio, climatic condition

Study on the strategy of how to install international standards for concrete structure

Budgeted: Grants for operating expenses

General account

Research Period: FS2004–2006

Research Team: Structure Management
Technology

Author: WATANABE Hiroshi

KOGA Hirohisa

NAKAMURA Eisuke

Abstract:

ISO 19338 provides the performance and assessment requirements for design standards on structural concrete and employs the limit state design. The Japanese design specifications for concrete highway bridges are not necessarily consistent with ISO and other countries' specifications. This research project clarified the differences among these design specifications and obstacles to introduce ISO standards to the Japanese design specifications. Also, the limitation of the crack width, the shear equation for RC beams with stirrups and the details of the bent corner for reinforcement steels were compared and verified with the experimental data.

Key words: international standard, ISO 19338, limit state design, crack width, shear equation, structural details

Development of investigation method for reinforcement corrosion in existing concrete structures

Budget: Grants for operating expenses
Road account
Research Period: FS2004–2006
Research Team: Structure Management
Technology
Author: WATANABE Hiroshi
KOGA Hirohisa
NAKAMURA Eisuke

Abstract:

The detection of the reinforcement corrosion prior to the serious deterioration such as falling, cracking and rust fluid is indispensable for the rational maintenance of existing concrete structures. The aim of this research project is to improve the reliability of the half-cell potential technique and propose its application to the maintenance strategy. The authors conducted the research work on the existing RC and PC bridges near the coastline and some specimens in the laboratory. The half-cell potential readings were found to be varied according to the measurement condition and the macrocell corrosion. However, the potential mapping was able to detect the high chloride ion content points and localized corrosion sites in spite of their ambiguous fluctuation.

Key words: concrete structures, corrosion in concrete, half-cell potential method, corrosion induced by chloride ion

A study on the database of concrete structures deteriorated by salt attack and its utilization for the maintenance plan

Budget: Grants for operating expenses

Road account

Research Period: FS2004–2006

Research Team: Structure Management
Technology

Author: WATANABE Hiroshi

KOGA Hirohisa

Abstract:

In this study, past records of various concrete structures deteriorated by salt attack were examined to discuss how to utilize various data in regular inspections. As a result, though the ingress of chloride ions in concrete can be predicted by Fick's law of diffusion, chloride ion concentration in each investigated area varies widely. The record of exactly where concrete samples were taken is, therefore, essential. A computer program to evaluate the condition of concrete structures was developed to show an example to utilize inspection data.

Key words: concrete maintenance, corrosion induced by chloride ion, inspection for bridges

Research on surface water and minerals flow in a dam reservoir

Budgeted: Grants for operating expenses

River account

Research Period: FS2004–2006

Research Team: Geology

Author: SASAKI Yasuhito

KURAHASHI Toshiyuki

YAJIMA Yoshinori

Abstract:

This research reported the result of surface water chemical analysis and mineral analysis in Kinugawa river basin. We collected 66 water samples in a drainage area of a Kawaji dam. It results that surface water of river carries and provides silicon and iron as ion, aluminosilicates and opal phytolith.

Key words: surface water chemical analysis, mineral analysis, iron, silicon

Study on physical properties of liquefaction soil for seismic design

Budgeted: Grants for operating expenses

General account

Research Period: FS2003–2006

Research Team: Ground Vibration

Author: SUGITA Hideki

SASAKI Tetsuya

TANIMOTO Shunsuke

Abstract:

On the seismic design to Level 2 earthquake, it is reasonable to verify by displacement of structures after setting the demand seismic performance according to the function required from the structure after the earthquake. It is important to evaluate residual deformation of liquefiable ground by appropriate analysis method. For example, soil parameters used on effective stress analysis method is set to satisfy liquefaction resistance curve (LRC) obtained from laboratory test. However, it is not easy to gather non-disturbed sample on each construction point, and to examine the laboratory test. In this study, it has aimed to attempt the rationalization of a further seismic design by proposing the method of evaluating liquefaction properties of the soil from standard penetration tests (SPT).

The liquefaction resistance test data to frozen sample were collected and LRC, the strain increase characteristic, and the relation to SPT-N value were analyzed. As a result, the correlation of LRC and SPT-N of the alluvial sandy soil was clarified, and it proposed the simple presumption method of LRC of the alluvial sandy soil to double axial strain amplitudes $DA=1\%$, 2% , 5% , and 10% .

Key words: liquefaction, liquefaction resistance, residual displacement analysis, frozen sample

Limit State Design of retaining walls against seismic loads

Budgeted: Grants for operating expenses

General account

Research Period: FS2002–2006

Research Team: Ground Vibration

Author: SUGITA Hideki

TAKAHASHI Akihiro

Abstract:

Aim of this project is to develop methods for limit state design of retaining walls against seismic loads. Required seismic performances and their limit states of retaining walls subjected to seismic loads were summarized. To examine seismic performance of existing retaining walls, seismic performance that the existing retaining walls exhibited in the 2004 Mid-Niigata Earthquake were collected and analyzed. It reveals that the retaining walls on the national highway Route No. 17 performed well in the earthquake. For the limit state design method, as a macroelement method is suited to estimation of retaining wall displacements occurring as a result of the application of a time history of earthquake motion, this method was adopted. Simple parameters determination procedures for the bearing capacity of foundation ground and for the seismic earth pressure were proposed. The procedures were validated by comparison with results of dynamic centrifuge model tests on retaining walls.

Key words: retaining walls, seismic performance, limit state, seismic design

A research on seismic performance of reinforced concrete structure subjected to
3-dimensional excitation

Budget: Grants for operating expenses
General account
Research Period: FS2002 – 2006
Research Team: Earthquake Engineering
Author: UNJOH Shigeki
NISHIDA Hideaki

Abstract:

The objective of this study is to evaluate the structural response characteristics subjected to 3-dimensional earthquake ground motion and to propose the seismic design method of the Reinforced concrete structures. Main results of this study are summarized as follows;

- 1)The effect of vertical excitation is not dominated for the lateral response behavior in case of applying low constant axial force,
- 2)Fiber element model analysis could simulate the tested dynamic response behaviors well until the spalling of the cover concrete and buckling of the longitudinal rebar.
- 3)Maximum lateral displacement of the pier considering bilateral bending effect and uncertainty of directivity of input ground motion could be estimated well based on unidirectional response analysis.

Key words: reinforced concrete structure, 3-dimensional excitation, shaking table test, fiber element model analysis

A research on seismic design method for bridge pier using high performance materials

Budgeted: Grants for operating expenses
Road account
Research Period: FS2002—2006
Research Team: Earthquake Engineering
Author: UNJOH Shigeki
SUGIMOTO Ken
NISHIDA Hideaki

Abstract:

The objective of this study is to propose the standard seismic design methods of bridge structure with high performance materials. Main results of this study are summarized as follows;

- 1) Total 10 RC pier specimens with high strength materials were tested. These results shows that ductility performance of RC pier specimens under low axial force condition has not been improved even if high strength materials (SD685, $\sigma_k = 60\text{N/mm}^2$) have been used.
- 2) Strength and ductility performance evaluation method based on seismic ductility design method was proposed by improved current stress-strain relationship model for confined concrete,
- 3) Ultimate strength/strain of high-strength steel piers were studied with different buckling parameter, and it is concluded that deformation performance of high-strength steel piers is inferior to that of ordinary steel piers.

Key words: bridge pier, high strength concrete, high performance steel, ductility performance

A study about evaluation methods for restoration of river environment in river basin level

Budget: Grants for operating expenses

General account

Research Period: FS2004–2006

Research Team: River Restoration

Author: AMANO Kunihiko

DENDA Masatoshi

Abstract:

To restore river environment effectively and consentaneously in river basins scale, assessment methods and systems for river environment restoration in basin scale are necessary. In this study, we developed assessment methods and system which connect index of river ecosystem, river hydrodynamics and Geographic Information System (GIS).

We succeeded to develop a system which can analyze biological community characteristic, physical environment characteristic and their relationship using GIS. The system had functions which extract characteristics of environment restoration section and verify restoration plans. To verify system function, we applied the system to river terrace excavation project which are carried out in Chikuma river. The result of verification indicated the validity of the system. The system which was proposed seems useful tool when river environment restoration were planed and assessed.

Key words: basin scale, river environment, river environment restoration , assessment methods, GIS

Study on the material dynamics through dam reservoir (2)

Budgeted: Grants for operating expenses

River account

Research Period: FS2004–2006

Research Team: River Restoration

Author: AMANO Kunihiko

NAKANISHI Satoru

Abstract:

Trap of materials such as silica by dam reservoirs became a concern in estuary. We have measured the concentration of biogenic silica in bottom sediments and the settling flux of biogenic silica in a dam reservoir. We have also simulated the trapped mass of silica through the uptake of diatom in five dam reservoirs. The percentage of silica trapped by diatoms in dam reservoirs in Japan seemed quite low (ca. $\sim 1\%$).

Key words: dam, silica, trap, simulation

Detection of Environmental Stresses on Aquatic Organisms Using Gene Analysis Technology

Budget: Grants for operating expenses

General account

Research Period: FS2002 – 2006

Research Team: Water Quality

Author: SUZUKI Yutaka

KITAMURA Tomokazu

Abstract:

Some stresses, which are caused by chemicals like medicines, may not be detected with traditional bioassay methods. Nowadays, a method that evaluates the influences of such chemicals with gene technology has been developed. However, this method is mainly used in the medical field. We attempted to apply this gene technology to the environmental study for evaluation of the chemical impacts on aquatic organisms present in river water or sewage treatment water.

In this study, three experiments were carried out exposing *Oryzias latipes* to cyanogen, different water temperature ranging from 16 to 28°C and sewage. And the gene expression of *Oryzias latipes* was investigated.

The results of the experiments conducted are as follows:

- 1) In the cyanogen exposure experiment, the expression of the vitellogenin I gene was lowered.
- 2) The gene expression was greatly differed according to breeding water temperature. The genes suppressed in the low water temperature were genes of metabolic system and immune system. And the expression of the Pax-3 gene (development) and tubulin α gene (cytoskeletal) were promoted. The gene appeared in the high water temperature were genes metabolism system and immune system.
- 3) Exposure experiment of the male *Oryzias latipes* to the sewage was carried out. As a result, the expression of the genes which were related to the ovogenesis was confirmed in the male *Oryzias latipes*, and this might be induced by the estrone contained in the sewage.

Key words: Environmental stress, *Oryzias latipes*, Gene expression

Study on material transport process in dam reservoir (1)

Budgeted: Grants for operating expenses

River account

Research Period: FS2004–2006

Research Team: River and Dam Hydraulic
Engineering

Author: HAKOISHI Noriaki

SAKURAI Toshiyuki

Abstract:

It is being understood that various kinds of nutrients and heavy metal compounds are important for river and ocean ecosystem. Since the dam reservoir temporally stores river water, it is required to understand the transport and trap process of nutrients and heavy metal compounds and to take appropriate measures if it is necessary.

This study aims to understand transport process of silica, iron and related materials that have large effect on growth of phytoplankton. As a result of field observation, inflow and outflow concentration and quantity of silica, iron and related materials during flood and normal time were understood.

Key words: dam reservoir, silica, iron, water quality analysis, field observation

Study on design method of spillway for single purpose flood control dam

Budgeted: Grants for operating expenses
River account
Research Period: FS2004–2006
Research Team: River and Dam Hydraulic
Engineering
Author: HAKOISHI Noriaki
MIYAWAKI Chiharu
SAKURAI Toshiyuki

Abstract:

Recently, single purpose dams for flood control come to be spotlighted. On this type of dams, outlet facilities installed near the level of river bed is expected to work both as a sediment outlet and a fish way. However, blocking inlets by floating logs and sediment discharge are considerable, clarifying blocking conditions and developing measures against blocking are required. In this study, we focused the partial pipe-flow type outlet facilities for flood control. We investigated blocking conditions of inlets and preventing methods against floating logs or sediment discharge to clarify these phenomena. Moreover, we presented design methods of outlet facilities for flood control free from blocking by floating logs and sediment discharge.

Key words: single purpose flood control dam, outlet facilities for flood control, measures against sedimentation, floating logs, prevention method for blocking, screen

Survey on methods to estimate scale of landslide of cut-slope by high-accuracy surface displacement measurement

Budget: Grants for operating expenses

Road account

Research Period: FS2003–2006

Research Team: Landslide

Author: FUJISAWA Kazunori

KOJIMA Shin-ichi

Abstract:

When a landslide is induced by cutting roadside, it is quite important to install emergency countermeasures as soon as possible, because the delay of installment often makes the damage larger. For their immediate installment, it is necessary to know the moving feature and size of a landslide without taking time. However, ordinary methods, such as investigating a slip surface by taking core samples and monitoring the movement of land mass using vertical boring holes, is quite time-consuming. In addition, there is an issue of safety, as operational works required to these methods have to be carried out directly on unstable landslides. This study developed a monitoring technique of ground surface displacement and examined an estimation method of the depth of a slip surface. For monitoring surface displacement, hybrid GPS provided accurate monitoring data, although it was inflexible, for GPS points have to be set fixed. On the other hand, employing an optical theodolite enables flexible and reasonably accurate monitoring, proving to be suitable in emergency situation. A computer program which estimates the depth of slip surface from the vector data of surface movement at several points was developed and applied to several landslides. The slip surfaces given by the program were agreeable to the actual surfaces estimated from ordinary methods.

In future, it is necessary to further improve monitoring systems of active landslide mass and estimation methods of their size in a quick, easy, and reliable manner to be practically applicable to disaster areas.

Key words: landslides, deal with disaster, slip plane of landslide, ground surface displacement measurement

Study on development of planning method for the ground water drainage works

Budgeted: Grants for operating expenses

River account

Research Period: FS2003–2006

Research Team: Landslide

Author: FUJISAWA Kazunori

OHARA Joko

Abstract:

The safety factor of a landslide slope determined from investigation before applying countermeasures is changeable following the progress of their installation. This study examined a method to design ground water drainage systems considering recurrence intervals of rainfall events, and proposed an index to evaluate the effect of those systems from monitoring data.

The results suggested there was no clear relationship between recurrence intervals of daily rainfall and landslide behaviors during the study period. Estimation of ground distortion until a landslide collapses was impractical to be employed in designing a drainage system because of numerous assumptions to be made in calculation. Monitoring data showed that the installation of countermeasures raised threshold antecedent precipitation index for landslide movement, suggesting that the potential of the index in evaluating the effect of drainage systems.

Key words: landslide, antecedent precipitation index, ground water, drainage works, monitoring

Research on the elevation dependency of avalanche causal factors and avalanche prediction

Budget: Grants for operating expenses

River account

Research Period: FS2003–2006

Research Team: Snow Avalanche and

Landslide Research Center

Author: HANAOKA Masaaki

KANEKO Masanori

ITO Yoichi

Abstract:

Statistical snow avalanche prediction method was verified using avalanche and weather observation data. Altitude correction functions of weather factors were calculated from weather observation data in avalanche starting zone and in low-altitude area to improve prediction accuracy by estimating weather condition of high altitude avalanche area. The altitude correction functions of air temperature and snow depth were almost constant in several observation areas; then new prediction equation was made considering the altitude correction function. Then daily avalanche danger index was calculated using the new prediction equation and usual prediction equation (not including altitude correction). The calculation results were compared with avalanche occurrence observation data and showed increasing accuracy of prediction when considering the altitude correction of weather observation data.

Key words: non-structural measures, surface /full depth avalanche, weather observation data, altitude correction, statistical prediction method, avalanche danger index (DI)

A study on a way to classify of snowy and road

Budgeted: Grants for operating expenses

Road account

Research Period: FS2003–2006

Research Team: Pavement

Author: KUBO Kazuyuki

YABU Masayuki

TERADA Masaru

Abstract:

The road management is done based on the depth etc. of the snow in winter such as clearing snow by experienced judgment. It is necessary to make the index where the state of the road can be shown by a common level of control for the road network securing in safe, efficient winter.

In the main enumeration, to use easily on the site and to make the index where the state of the road was able to be shown by a common level of control, it proposed the method of classifying a handy, new road where the slipping coefficient of friction etc. had been considered.

Key words: road management, snow ice road, slipping coefficient of friction, and road、
Classification in winter

Research on rationalization of tunnel support structure

Budgeted: Grants for operating expenses

Road account

Research Period: FS2004–2006

Research Team: Tunnel

Author: MASHIMO Hideto

KUSAKA Atsushi

Abstract:

The setting of support structure constructed by NATM is considered to be more rational by revising from original support pattern into proper structure for ground condition according to observation and measurement at site. However, in actual, in case of change in support structure, ground grade is changed by observation result, and support pattern corresponding to the ground grade is set without the validity of the support structure at the moment being judged. Therefore, establishment of criterion of validity for support structure is needed with the aim of constructing rational and economical tunnel structure.

In this study, displacement in excavation is adopted as an index of stability of support structure, and criterion of judgment for validity of support structure is examined.

Key words: NATM, ground characteristic curve, support, ductility

Study on enhancement about tunnel maintenance method

Budgeted: Grants for operating expenses

Road account

Research Period: FS2003–2006

Research Team: Tunnel

Author: MASHIMO Hideto

KADOYU Katsunori

Abstract:

In this research, the prediction model about prospective tunnel degradation was tried to propose by revealing the relationship between the age of tunnel, configuration and geological condition around tunnel, environment in tunnel. Total cost of reactive countermeasure was compared with that of proactive countermeasure by using deformation progress as a parameter.

The result from this research was that cracks caused by concrete shrinkage due to a drop in tunnel temperature or lower humidity in tunnel expanded within almost five years after tunnel construction, and it did not expand anymore after that. And tunnel deterioration curve for cracks caused by landslide was defined as an exponential curve by using an index of crack density. It was also clarified that tunnel deformation progressed very slowly so, reactive countermeasure was more economical than proactive countermeasure in term of total cost of countermeasure.

Key words: crack density, prediction of crack progress, proactive countermeasure, reactive countermeasure, scheme of tunnel management

Research on connection design between steel and concrete

Budgeted: Grants for operating expenses

General account

Research Period: FS2004–2006

Research Team: Bridge

Author: MURAKOSHI Jun

TANAKA Yoshiki

Abstract:

For designing steel-concrete composite structures, it is indispensable to discuss connection design. In this research, for discussing dowel behaviors of a conventional type of composite connection using steel bars like studs, the modulus of dowel support in concrete was experimentally verified. In addition, it was found that the load-carrying capacity initiating yield of the steel bars can be estimated by using Rasmussen's formula with a modified factor.

Key words: stud, dowel bar, shear transfer, beam on elastic foundation(BEF), k-value

Research on ultrasonic testing methods in welded joints of steel bridges

Budgeted: Grants for operating expenses

Road account

Research Period: FS2003–2006

Research Team: Bridge

Author: MURAKOSHI Jun

TAKAHASHI Minoru

Abstract:

One of the most important subjects to ensure fatigue durability of welded joints of steel bridges is to secure welding quality during fabrication by non-destructive testing such as ultrasonic testing, UT. The aim of this research is to develop automatic UT methods which can detect embedded welding defects with higher accuracy and reliability compared with conventional manual UT. Using actual model specimens of beam-column connection welded joints with embedded defects, a series of performance test were conducted for several UT systems. As results of detection rate and oversight rate, it is found phased array method is effective for detecting embedded defects at beam-column connection welded joints compared to conventional AUT.

Key words: ultrasonic testing, beam-column connection welded joints, welded defects, phased array

A research on bearing capacity of the shallow foundations subjected to earthquake loads

Budget: Grants for operating expenses

General account

Research Period: FS2003–2006

Research Team: Foundation Engineering

Author: NAKATANI Shoichi

SHIRATO Masahiro

KOHNO Tetsuya

Abstract:

We developed a dynamic analysis model for the nonlinear behavior of a shallow foundation during an earthquake. A macro-element approach is proposed considering elastic-plastic behavior, uplifting behavior, coupling effects of vertical, horizontal and moment loads. We also conducted large scale shake table tests and cyclic load tests of model pier footings. We simulated the experimental result using the proposed macro-element model. The shape of the hysteresis loops for coupled load, displacement relationships were predicted very well. In addition, the numerical result was capable of accounting for shallow foundation was rocked, resulting in the settlement with some inclination. The residual settlement varied with the characteristic of base accelerations.

Key words: shallow foundation, macro-element, bearing capacity, dynamic analysis, residual settlement

Research on systematization of design method for trench structures (2)

Budget: Grants for operating expenses

Road account

Research Period: FS2005–2006

Research Team: Foundation Engineering

Author: NAKATANI Shoichi

TAKEGUCHI Masahiro

Abstract:

This research studied the applicability and the performance requirement of structure using a temporary sheathing wall for a main wall, for the trench structure of shallow depth, and arranged the important matter and study subject at the time of developing rationalization structure. As the results, it was shown clearly that SMW and steel pipe sheet piles are that the cost reduction is expectable, and it is important to consider the construction accuracy, quality, durability, cutoff performance of sheathing wall, and rationalization of joint structure with the sheathing wall and main wall or slab.

Key words: trench structure, sheathing wall, performance requirement, rationalization

Development of data base for evaluation of hydraulic and hydrological model

Budgeted: Grants for operating expenses

River account

Research Period: FS2003–2006

Research Team: Disaster Prevention

Author: YOSHITANI Junichi

Abstract:

We developed "Hydraulic document integrated data base" as a function for preservation, searching and inspection of hydraulic data and related documents for hydraulic and hydrological model evaluation. Data on rainfall and flowing quantity of Ura-tsukuba Experimental Basin, Tama new town Experimental Basin, Yata River, Nakagawa River, Automated Meteorological Data Acquisition System, Mekong river, Thailand Chao Phraya river, Thailand Mae Chaem River and other 33 places in Japan were collected in this data. We will evaluate reliability of data of the Thailand Mae Chaem River and the nationwide dam, and will make them public from the Public Works Research Institute homepage. In addition, we created data set regarding natural flow quantity in Agatsuma river along the Tonegawa River and recorded in the "Hydraulic document integrated data base", because there are few reliable data for evaluation of large river basin and long term hydraulic model for low stream water.

Key words: water-related disaster database, rainfall, flowing quantity