NILIM
No.26
Autumn 2008

国総研ニューズレター　NILIM News Letter

平成20年岩手・宮城内陸地震被害調査概要

1. はじめに

2008年6月14日8時43分頃、岩手県内陸南部を震源とするマグニチュード7.2（暫定値）の地震が発生した[1)]。同日、気象庁はこの地震を「平成20年（2008年）岩手・宮城内陸地震」と命名した。また、消防庁の取りまとめによると、8月8日17時30分現在、地震による死者は13名、行方不明者は10名、負傷者は450名、住家被害は、全壊28棟、半壊112棟、一部破損1,693棟に上っている[2)]。

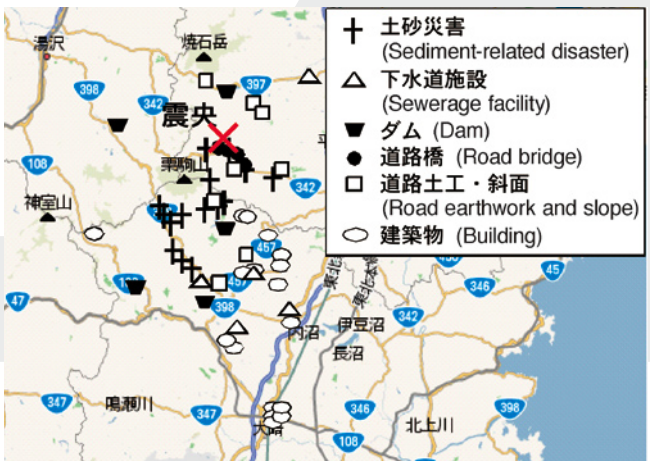
地震後、国土技術政策総合研究所、土木研究所、建築研究所及び港湾空港技術研究所では、連携して関係する分野ごとに国土交通省の緊急災害対策派遣隊（TEC-FORCE）に参画するほか、自主調査チームを編成し、6月14日から8月20日までの間に延べ109人の職員を順次現地に派遣した。本稿は、これらの被害調査結果[3)]の概要を報告するものである（図－1）。

Summary of Survey on the Damage caused by the Iwate-Miyagi Nairiku Earthquake in 2008

1. Introduction

An earthquake of magnitude 7.2 (tentative) with its epicenter in the south of inland Iwate Prefecture occurred at 8:43 on June 14, 2008.[1)] Japan Meteorological Agency named it "Iwate-Miyagi Nairiku Earthquake in 2008" on the same day. Fire and Disaster Management Agency reported that 13 were dead, 10 were missing, 450 were injured, 28 houses were destroyed, 112 houses were partially destroyed, and 1,693 houses were partially damaged,[2)] as of 17:30 on August 8.

After the earthquake, National Institute for Land and Infrastructure Management, Public Works Research Institute, Building Research Institute, and Port and Airport Research Institute participated in the Technical Emergency Control Force (TEC-FORCE) organized by the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) to take charge of a survey to be conducted in each related field in mutual collaboration. They also organized independent survey teams and dispatched a total of 109 staffs to the scene in succession from June 14 through August 20. In this paper, we summarize the results of the damage survey.[3)] (Fig. 1)



図－1　調査位置図
Fig. 1　Position map of the survey

2. 地震と地震動

本地震の震央は岩手県内陸南部（北緯39度01.7分、東経140度52.8分）、震源深さは8kmであった（いずれも暫定値）。岩手県奥州市及び宮城県栗原市で震度６強、宮城県大崎市で震度６弱の揺れが観測された。

本地震では、東北地方整備局を中心に関東、北陸、中部地方整備局管内の約230箇所において、国土交通省が管理する地震計ネットワークにより地震動を観測した。その中では、最大加速度については国道４号新達田橋（震央距離約30km）で観測した461gal、SI値については大崎出張所（震央距離約52km）で観測した55kineが最大であった。なお、観測データの最大加速度及びSI値をホームページ[4)]において公開中である。

3. 土砂災害

今回の地震では、震度５強以上のエリアを中心に、多数の山腹崩壊が発生した。大規模な土砂移動現象としては、宮城県栗原市三迫川上流で発生した土石流（写真－1）、同二迫川荒砥沢ダム上流で発生した大規模地すべりなどがある。三迫川の土石流では、崩壊地から約５km下流の駒ノ湯温泉の旅館が押し流された。

河川に面した斜面での比較的規模の大きな崩壊は、河道閉塞（天然ダム）を生じさせた。このうち、湛水・決壊による影響が大きいと考えられるものが15箇所把握された。岩手県一関市厳美町市野々原地区など下流域に形成された河道閉塞に対しては、緊急掘削により暫定河道を確保すること等で危険度を低減することができたが、迫川上流域に形成された２箇所については、重機の進入路が無かったことから、ヘリによる資材搬入を行い、まず監視機器の設置およびポンプ排水を行って安全確保を図り、その後対策工事に着手した。

2. Earthquake and ground motion

The epicenter of this earthquake was the south of inland Iwate Prefecture (latitude 39º 01.7' N., and longitude 140º 52.8' E.), and the focal depth was 8 km (All figures are tentative). Oshu City of Iwate Prefecture and Kurihara City of Miyagi Prefecture recorded the quakes of intensity 6 upper, and Osaki City of Miyagi Prefecture recorded the quakes of intensity 6 lower.

In addition to the observation points affiliated with Tohoku Regional Bureau, the ground motion was observed at a total of about 230 observation points affiliated with Kanto, Hokuriku, and Chubu Regional Bureaus, through the strong-motion observation network managed by the MLIT. The maximum acceleration was 461 gal observed at the Shintatsuta Bridge on the National Highway Route 4 (about 30 km from the epicenter), and the maximum SI value was 55 kine observed at Osaki Office (about 52 km from the epicenter). The maximum acceleration and the maximum SI value are released on our website[4)].

3. Sediment-related disaster

In this earthquake, many hillsides collapsed mainly in the area hit by quakes above intensity 6 lower. Large sediment migration phenomena include debris flows upstream of Sanhasama River in Kurihara City of Miyagi Prefecture (Photo 1), and the large landslide upstream of Aratozawa Dam on Nihasama River of Miyagi Prefecture. The debris flow on Sanhasama River washed hotels of Komanoyu Spa about 5 km downstream of the landslide.

Relatively massive collapse of structures on the slope facing the river caused channel blocks (natural dams), 15 of which were believed to have been greatly affected by flood and washout. Tentative river channels created by emergency earthwork reduced the degree of risk faced by channel blocks formed downstream in the Ichinonobara area in Genbi Town of Ichinoseki City in Iwate Prefecture. However, since it was impossible to transport heavy machinery by land to the site, efforts were made to ensure safety from the two channel blocks formed upstream of Hasama River by transporting materials by helicopters, setting monitors, and pumping the drainage water. Then, countermeasures were taken as of July 11.

写真－１　三迫川上流の土石流
Photo 1　Debris flow on the upstream of Sanhasama River

4. 下水道施設

下水道施設の被害は、管路施設では宮城県迫川流域下水道及び奥州市と栗原市の公共下水道、処理施設では岩手県北上川上流流域下水道水沢浄化センターと栗原市鶯沢浄化センターの２処理場で発生した。いずれの被害も、下水道の機能に支障はなかった。

栗原市では、市域西側において広範囲に被害が発生した。管きょの被害形態としては、マンホール隆起及び周辺地盤沈下、埋戻し部の路面沈下が多かった。マンホール隆起は鶯沢地区で多く発生し、幹線管きょの約75％（33/43個）で隆起が確認された。隆起高さは平均約10cm、最大29cmであった。また、鶯沢浄化センターで地盤沈下（８～10cm）、OD槽の蓋の外れ、躯体伸縮目地のズレ（１cm未満）等が発生したが、処理機能に支障はなかった。

奥州市では、水沢区の２箇所（同一地区内）でマンホール隆起（約５cm）及び周辺地盤沈下（約12cm）、埋戻し部の路面沈下が発生した。

5. ダム

ダム管理者による臨時点検の結果、変状の報告があったダムのうち国土交通省、宮城県及び秋田県が管理する５ダム（石淵ダム、荒砥沢ダム、上大沢ダム、小田ダム、皆瀬ダム）について各管理者からの要請により現地調査を６月15、16日に実施した。今回の調査による限り、５ダムともダムの構造面での安全性に大きな問題はないものと判断された。

国土交通省管理の石淵ダム（コンクリート表面遮水壁型ロックフィルダム、堤高53.0m）では、堤体の天端や下流面の高標高部における変状が認められたものの、ダムの遮水機能上、最も重要なコンクリート表面遮水壁に大きな問題は認められなかった。下流法尻で計測している漏水量は、地震後若干増加したが１時間後には安定した。

6. 道路橋

道路橋では、震源に近い国道342号の祭畤（まつるべ）大橋が落橋する被害が発生した（写真－2）。祭畤大橋を始め、その周辺の道路橋に対して緊急調査を行ったが、祭畤大橋以外の道路橋では、その直近においても、橋梁の構造部材の損傷等により構造安全性が問題となるような被害は確認できなかった。

祭畤大橋は、昭和53年架設の橋長94.9mの３径間連続非合成鋼鈑桁橋である。下部構造は、逆Ｔ式橋台及びＴ型橋脚であり、いずれも直接基礎である。祭畤大橋では、上部構造が破壊したP2（一関側）橋脚付近で落下し接地していたとともに、両端で橋台から脱落していた。本橋周辺各所の地山崩壊の状況と橋の状態から、秋田側の下部構造（A1橋台、P1橋脚）が地盤とともに一関側に移動して上部構造全体をA2橋台の方へ押出し、その結

4. Sewerage facilities

In this earthquake, the pipelines of the Hasama River sewerage plant and the public sewerage system in both Oshu City and Kurihara City were damaged. Further, the treatment plants of the Mizusawa filtration center of Kitakami River of Iwate Prefecture and Uguisusawa public sewerage system in Kurihara City were damaged. However, the sewerage function of none of them was impaired.

The west of Kurihara City suffered widespread damage. To be concrete, there were many uplifted maintenance hatches along with sinkage of the surrounding area, and ground sinkage in the backfills, which may be cited as representative damage patterns on intercepting sewers.

Many uplifted maintenance hatches were observed in intercepting sewers in the Uguisuzawa area. In fact, about 75% (33 out of 43) of the maintenance hatches of the major intercepting sewers were uplifted in this area. The uplifted height was about 10 cm on average and 29 cm at a maximum. In addition, there were cases of ground sinkage (8□10 cm), missing lids of OD tanks, and joint misalignments of building frames (less than 1 cm), none of which interfered with the sewerage treatment function.

In the Mizusawa area of Oshu City, two uplifted maintenance hatches (about 5 cm each) and ground sinkage in the surrounding area (about 12 cm), and ground sinkage of the backfill were observed.

5. Dams

Dam managers carried out immediate inspection of their respective dams. Of the dams reported to have been deformed, a field survey was conducted on the following dams on June 15 and 16 at the request of the manager of each dam: Ishibuchi Dam, Aratosawa Dam, Kamiohsawa Dam, Oda Dam, and Minase Dam, all of which are managed by MLIT, Miyagi Prefecture, and Akita Prefecture. The field survey revealed that from the structural viewpoint, none of these five dams faces any serious safety hazards.

In Ishibuchi Dam (a rock-fill dam with impermeable concrete face, bank height: 53.0 m) managed by MLIT, deformation was observed at the dam crown and at a part located at high altitude on the downstream side. However, the concrete surface impermeable wall that plays the most important role in water shielding was found problem-free. Water leakage measured at the toe of the slope on the downstream side increased slightly after the earthquake, but became stable in one hour.

6. Road bridges

Matsurube Bridge on National Highway Route 342 was close to the epicenter and collapsed. (Photo 2) An emergency survey was conducted on this bridge and other neighboring road bridges. The survey indicated that no road bridges, even the bridge nearest to collapsed Matsurube Bridge, suffered any structural damage that may pose any safety hazards.

Built in 1978, Matsurube Bridge was a 94.9-m-long three-span continuous noncomposite steel plate girder bridge. Its substructure was comprised of an inverted T-type abutment and a T-type pier, each of which was supported by a spread foundation. This bridge fell on the ground around the P2 bridge pier (on the Ichinoseki side), where the superstructure collapsed, and both ends fell from the bridge seats.

Judging from the condition of the bridge and ground collapse of its neighboring area, possibly the substructure on the Akita side (bridge abutment A1 and bridge pier P1) moved to the Ichinoseki side together with the ground and pushed

果、P2橋脚とA2橋台が大きく破壊して橋桁落下を生じた可能性が考えられた。なお、落橋メカニズムの正確な把握には、今後の詳細な位置測量や各部の損傷状態の詳細調査が必要である。

out the entire superstructure toward the bridge abutment A2; subsequently, the bridge pier P2 and the bridge abutment A2 collapsed, thereby completely destroying the bridge. However, in order to gain correct understanding of the bridge collapse, it is necessary to conduct a detailed survey of damaged parts and accurately measure their positions.

写真－2　落橋した祭畤大橋
Photo 2　Collapsed Matsurube Bridge

7. 道路土工・斜面

調査を行った国道342号、397号及び398号並びにその周辺の県道等において発生した道路斜面崩壊の大半は岩盤崩壊であった。次いで落石が多く、土砂崩壊では小規模な表層崩壊は少なく、比較的大規模なものが多かった。

切土区間の擁壁、落石防護擁壁、のり枠などの対策工は、岩盤崩壊箇所などのように崩壊規模の大きな箇所では被災していたが、それ以外の箇所においては、落石がのり枠を直撃し破損した例や若干のはらみ出しが生じた例などが一部で見られた程度であった。

盛土、擁壁等の道路土工の被害については、調査した範囲内では、腹付け部や片切り片盛部の路肩側車線の沈下、段差、橋梁取付部の段差等の比較的軽微な被害が多く見られた。

8. 建築物

8. 1　住宅・宅地の被害状況

過去の被害地震と同様に、主として被害の想定される地域を対象として、被災建築物の応急危険度判定及び被災宅地危険度判定が実施されている。調査対象の多かった自治体については、６月25日現在の報告では、岩手県奥州市で危険45（8）棟、要注意249（37）棟及び調査済812（248）棟、宮城県栗原市で危険190（31）棟、要注意517（21）棟及び調査済2173（31）棟との結果（いずれも括弧内が被災宅地危険度判定結果。ただし、両者の判定対象は必ずしも一致しない）とされている。

8. 2　被害調査の状況

建築物については、特に学校建築物を中心に現地調査

7. Road earthwork and slope

Slope failures on National Highways Route 342, Route 397, and Route 398 and neighboring prefectural highways are mostly rock collapse that is followed by falling rocks. In the sediment failure, relatively large-scale surface failures were observed, and there were few small-scale surface failures.

Countermeasure constructions for roads, such as prevention fence for cut land zone, rock-fall prevention fence, and frameworks for slope stabilization, were damaged where large scale collapse occurred. However, damage was not much serious in other areas because only some frameworks for slope stabilization were hit by falling stones and swelled out slightly.

Our survey revealed that road earthworks including embankments and retaining walls were damaged slightly. They suffered sinkage of traffic lane on the road shoulder, bumps, and bumps on the approach to bridge piers.

8. Buildings

8.1 Damage to buildings and building lands

As in the case of major earthquakes that occurred previously, post-earthquake quick inspection of damaged buildings and building lands was conducted in Iwate and Miyagi prefectures; this inspection was carried out mainly in those areas that were known to have suffered severe damage. Table 1 shows the results of the survey conducted on municipalities in which many structures were surveyed. (The number of buildings and building lands that were surveyed in the two prefectures did not match because these inspections were conducted individually.)

Table 1　Result of the inspection (excerpted)

(As of June 25)

Municipality		Damage to Building			Damage to Building Land		
Pref.	City	Unsafe	Limited entry	Inspec-ted	Unsafe	Limited entry	Inspec-ted
Iwate	Oushu	45	249	812	8	37	248
Miyagi	Kurihara	190	517	2173	31	21	31

を実施し、その外装材等の被害状況をすでに報告[5]している。写真－3は同報告で「戸建て木造住宅の振動的被害」とされたものであり、栗駒沼倉地区（上滝の原）の伝統的構法の住宅の西面外壁の被害状況である。南面の玄関付近では、近代的な工法で改築された部分の外壁の損傷、建具の脱落等があった。また隣接する牛小屋でも写真－3と同様な土壁の落下被害が見られた。いずれの構造部分についても残留変形は小さく、木造躯体の損傷は確認されなかった。その近隣では、補強鉄筋の入っていないと見られるブロック塀の倒壊が確認された。

これらのほか、初動調査以降に免震建築物、非構造部材、強振動（余震観測）についての現地調査を順次実施した。

8.3　建築物の地震時応答

初動調査の範囲では、建築物の構造的な被害は揺れの大きさ（震度）の割に少なかった。本震の地震記録（K-NET鳴子、K-NET築館、JMA栗駒、JMA古川）の擬似速度応答スペクトルは、周期0.5秒～2秒間で既往の被害地震（JMA神戸、JR鷹取）よりも小さく、被災地域に多い木造建築物や低層建築物などの応答に大きな影響を与えると考えられる周期１秒前後の地震動成分は大きなレベルではなかった。このため建築物には大きな被害が生じなかったものと考えられる。この傾向は建物モデルを想定した地震応答解析によっても確認された。

8.2 Results of the survey

A field survey was conducted with an emphasis on school buildings, and the damage caused to non-structural members in these buildings has already been reported.[5] Photo 3 shows the post-earthquake image of a single-family wooden house in the Kurikoma-Numakura area of Kurihara City in Miyagi Prefecture. As shown in the photo, the outer structural wall (mud wall) on the west side of the house that was constructed by traditional methods collapsed completely.

The outer wall near the south entrance of the house that was renovated using modern specification was also damaged, and the fixtures along the wall collapsed. An adjacent cowshed had the same damage as that shown in Photo 3. In both these cases, the residual deformation was relatively less and the extent of damage to the wooden structural frame was not confirmed. In the neighboring area, concrete-block walls without reinforcing bars collapsed.

In addition to the above survey, we also conducted a field survey on base-isolated buildings, non-structural members and strong quake motions (observation of aftershock activities).

8.3 Response of the buildings to earthquake

The initial survey revealed that the structural damage to buildings was not severe despite the reported seismic scale of the earthquake. The pseudo-velocity response spectrum of the observed records (K-NET Naruko, K-NET Tsukidate, JMA Kurikoma, and JMA Furukawa) of the main quake was smaller than that recorded for some previous major earthquakes (JMA Kobe and JR Takatori) by a period of around 0.5-2 s. The component corresponding to the period of 1 s that is closely related to the severe damage caused to the wooden buildings and low-rise buildings, which were common in the damaged area, was small. This explains why these buildings were not damaged seriously. This trend was also confirmed by the earthquake-response analysis of typical building models.

写真－3　戸建て住宅外壁損傷の状況（土壁の落下）
Photo 3　Damage to the outer wall of a single-family house (a mud wall collapsed completely)

参考文献

1）　気象庁ホームページ：
http://www.seisvol.kishou.go.jp/
eq/2008_06_14_iwate-miyagi/index.html
2）　消防庁ホームページ：
http://www.fdma.go.jp/detail/811.html
3）　国土交通省国土技術政策総合研究所・独立行政法人土木研究所・独立行政法人建築研究所緊急調査団：平成20年岩手・宮城内陸地震の緊急調査速報、土木

References

1)　Website of Japan Meteorological Agency
http://www.seisvol.kishou.go.jp/eq/2008_06_14_iwate-miyagi/index.html
2)　Website of Fire and Disaster Management Agency
http://www.fdma.go.jp/detail/811.html
3)　National Institute for Land and Infrastructure Management of the Ministry of Land, Infrastructure, Transport and Tourism, Public Works Research Institute, Building Research Institute, Emergency Survey Team: Emergency Survey Report of Iwate-Miyagi Nairiku Earthquake in 2008. Civil Engineering Journal,

技術資料、第50巻、第８号、pp.4～7、2008
4) 国土技術政策総合研究所ホームページ：河川・道路等施設の地震計ネットワーク情報
http://www.nilim.go.jp/japanese/database/nwdb/index.htm
5) 国土交通省：平成20年（2008年）岩手・宮城内陸地震に関する緊急災害対策派遣隊TEC-FORCE（緊急調査団）の調査結果について
http://www.mlit.go.jp/report/press/river03_hh_000046.html

※国土交通省国土技術政策総合研究所・独立行政法人土木研究所・独立行政法人建築研究所緊急調査団
1．～7．危機管理技術研究センター
地震災害研究官　田村　敬一
8．建築研究部基準認証システム研究室
主任研究官　井上　波彦
（独）建築研究所構造研究グループ
上席研究員　河合　直人

Vol. 50, No. 8, pp. 4-7, 2008/09/18
4) Website of National Institute for Land and Infrastructure Management: Information on Network of the Seismograph of Facilities like Rivers and Roads
http://www.nilim.go.jp/japanese/database/nwdb/index.htm
5) Ministry of Land, Infrastructure, Transport and Tourism: Survey Results of TEC-FORCE on Iwate-Miyagi Nairiku Earthquake in 2008
http://www.mlit.go.jp/report/press/river03_hh_000046.html

* The Emergency Survey Team comprises members from the National Institute for Land and Infrastructure Management of the Ministry of Land, Infrastructure, Transport and Tourism, Public Works Research Institute, Building Research Institute
1-7 Keiichi Tamura
Researcher of earthquake disaster
Research Center for Disaster Risk Management
8 Namihiko Inoue
Senior researcher
Standard and Accreditation System Division of Building Department
Naohito Kawai
Chief Research Engineer
Department of Structural Engineering of Building Research Institute

「平成20年岩手・宮城内陸地震」調査報告会の開催

「平成20年岩手・宮城内陸地震」調査報告会が、去る8月26日（火）、東京・港区の三田共用会議所・講堂において、国土技術政策総合研究所（国総研）、土木研究所（土研）および建築研究所（建研）の３研究機関共催の下で開かれました。

平成20年6月14日に発生した「平成20年岩手・宮城内陸地震」では、大規模な地すべりや河道閉塞、道路橋の落橋など、大きな被害が発生しました。国総研、土研および建研の3研究機関では、地震発生直後から緊急災害対策派遣隊（TEC-FORCE）をはじめとする専門家（3機関合計延べ290人・日）を現地に派遣するなど、連携して技術支援を行うとともに、今後の災害対策に活かすため、被害状況調査･被害発生原因の分析を行いました。この会は、こうした活動の成果を広く一般の方向けに報告したものです。

報告会では、はじめに気象庁・地震津波監視課の横田崇課長による「地震の概況とその特徴」と題した特別講演があり、観測された震度や地震波形の解析結果などを踏まえ、今回の地震の特徴に関して詳細にお話いただきました。その後、国総研、土研および建研の専門家による分野ごと（地震動、地形・地質、土石流・河道閉塞、大規模地すべり、下水道施設、ダム、道路橋、道路土工･斜面、建築物の合計9分野）の調査報告が行われました。今回の地震は山間部を震源とする地震であったことから、この報告会においても、河道閉塞や大規模地すべり等の土砂災害に大きな関心が集まりました。報告の詳細な内容については、国総研ホームページ（www.nilim.go.jp）に、当日参加者に配布した資料一式を公開していますので、是非こちらをご覧ください。

Presentation on the Survey on the Iwate-Miyagi Nairiku Earthquake in 2008

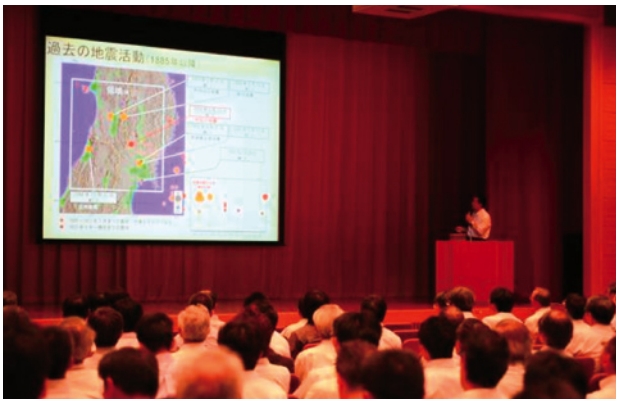
A presentation on the results of a survey conducted on the Iwate-Miyagi Nairiku earthquake in 2008 was made in the auditorium of Mita Chamber in Minato ward on Tuesday, August 26, 2008. The event was jointly sponsored by the National Institute for Land and Infrastructure Management (NILIM), Public Works Research Institute (PWRI), and Building Research Institute (BRI).

The Iwate-Miyagi Nairiku earthquake occurred on June 14, 2008, causing severe damage; for example, the earthquake caused large-scale landslides, collapse of bridges, and blocked river channels. Immediately after the earthquake, the NILIM, PWRI, and BRI dispatched a team of specialists, including members of the Technical Emergency Control Force (TEC-FORCE), to the badly hit areas and examined the area for an equivalent of 290 man-days. The objective of the team was to provide concerted technical assistance, survey the damage caused to the area, and carry out a damage analysis so as to improve disaster management skills for the future. In this presentation, the results of these studies conducted by the team of specialists were presented to the public.

The presentation began with a special lecture given by Takashi Yokota, Director of the Earthquake and Tsunami Observations Division, Seismological and Volcanological Department of the Japan Meteorological Agency. The lecture, titled "Description and Characteristics of the Iwate-Miyagi Nairiku Earthquake in 2008," was based on the analysis results of the seismic intensity and waveforms recorded for this earthquake. In his lecture, Director Yokota described the characteristics of the earthquake in detail. After this lecture, nine survey reports were presented individually by a specialist from the three agencies mentioned above. The nine topics discussed in the survey reports were: seismic motion of the earthquake, geography and geology of the affected areas, debris flow and river channel blockage caused by

当日は、ゼネコン・建設コンサルタントなどの民間企業の技術者、国・地方公共団体の職員、マスコミ関係者など約500名の参加者が集まり、会場は一時立見が出るほど盛況で、大変好評でした。

写真－1　会場の様子
Photo 1　Audience of the presentation



写真－2　講演の様子
Photo 2　Lecture area

表－1　当日のプログラム

報告タイトル	報　告　者
1．特別講演	
地震の概況とその特徴	気象庁　地震火山部　　横田　崇　地震津波監視課長
2．一般報告	
(1) 地震動	国総研　地震防災研究室　片岡正次郎　主任研究官
(2) 地形・地質	土研　地質チーム　倉橋稔幸　主任研究員
(3) 土石流･河道閉塞	国総研　砂防研究室　小山内信智　室長
(4) 大規模地すべり	土研　地すべりチーム　藤澤和範　上席研究員
(5) 下水道施設	国総研　下水道研究室　榊原　隆　室長
(6) ダム	土研　ダム構造物チーム　岩下友也　総括主任研究員
(7) 道路橋	国総研　道路構造物管理研究室　玉越隆史　室長
(8) 道路土工･斜面	土研　土質・振動チーム　杉田秀樹　上席研究員
(9) 建築物	建研　構造研究グループ　河合直人　上席研究員
総合質疑	

the earthquake, large-scale landslides caused by the earthquake, the effect of the earthquake on sewerage facilities, dams, road bridges, road structures and slopes, and buildings. At the end of the presentation, the audience expressed their concerns in the form of questions addressed to the speaker. Considering that the epicenter of this earthquake was in a mountain area, most of these questions were regarding sediment disasters such as river channel blockages and large-scale landslides. Further details of the reports along with the reading materials distributed during the presentation are available on our website (www.nilim.go.jp) (only in Japanese).

The presentation was attended by approximately 500 people, including engineers working for private companies, general contractors, and construction consulting firms; staff of national and municipal government organizations; and media representatives. This event was well received by a large audience that overshot the seating capacity of the venue.

Table 1　Presentation program

Report title	Presenter
1. Special lecture	
Description and Characteristics of the Iwate-Miyagi Nairiku Earthquake in 2008	Takashi Yokota, Director, Earthquake and Tsunami Observations Division, Seismological and Volcanological Department, Japan Meteorological Agency
2. Individual reports on each subject	
(1) Seismic motion of earthquake	Shojiro Kataoka, Team Leader, Earthquake Disaster Prevention Division, NILIM
(2) Geography and geology of affected areas	Toshiyuki Kurahashi, Team Leader, Geology Research Team, Material and Geotechnical Engineering Research Group, PWRI
(3) Debris flow and river channel blockage caused by earthquake	Nobutomo Osanai, Head, Erosion and Sediment Control Division, Research Center for Disaster Risk Management, NILIM
(4) Large-scale landsides caused by earthquake	Kazunori Fujisawa, Team Leader, Landslide Research Team, Erosion Sediment Control Research Group, PWRI
(5) Damage caused to sewerage facilities	Takashi Sakakibara, Head, Wastewater System Division, Water Quality Control Department, NILIM
(6) Damage caused to dams	Tomoya Iwashita, Deputy Team Leader, Dam Structures Research Team, Hydraulic Engineering Research Group, PWRI
(7) Damage caused to road bridges	Takashi Tamakoshi, Head, Bridge and Structure Division, Road Department, NILIM
(8) Damage caused to road structure and slopes	Hideki Sugita, Team Leader, Soil Mechanics Research Team, Material and Geotechnical Engineering Research Group, PWRI
(9) Damages caused to buildings	Naohito Kawai, Chief Research Engineer, Department of Structural Engineering, BRI
Questions and answers	

国土技術政策総合研究所資料一覧（2007年10月～2008年3月受本）
TECHNICAL NOTE of National Institute for Land and Infrastructure Management (October,2007-March,2008)

No.	資料タイトル Title of Paper	担当部課室名 Names of Divisions
77	首都圏外郭放水路第３立坑流入施設の水理模型実験報告書 Hydraulic Model Study Report of No.3 Shaft of Metropolitan Area Outer Dischage Channel	水害研究室 Flood Disaster Prevention Division
235	土木構造物における加速度強震記録（No.26） Strong-Motion Observation Records(No.26)	地震防災研究室 Earthquake Disaster Prevention Division
364	砂防基本計画策定指針（土石流・流木対策編） Manual of Technical Standard for establishing Sabo master plan for debris flow and driftwood	砂防研究室 Erosion and Sediment Control Division
365	土石流・流木対策設計技術指針 Manual of Technical Standard for designing Sabo facilities against debris flow and driftwood	砂防研究室 Erosion and Sediment Control Division
404	平成18年度下水道関係調査研究年次報告書集 FY2006 Annual Report of Wastewater Management and Water Quality Control	下水道研究部 Wastewater system Division
405	災害情報共有プラットフォーム標準仕様書 Standard Specifications for A Disaster Information Platform	情報基盤研究室 Information Technology Division
406	みんなで取り組むヒートアイランド対策～効果的な協力要請のあり方～ Heat Island Measures Working All Together	道路環境研究室 Road Environment Division
407	モーダルシフト化率の推計方法と動向分析 Estimation and Analysis of Modal Shift Rate of Domestic Freight Transport	港湾計画研究室 Port Planning Division
408	国際海上コンテナ貨物の輸送経路分析による港湾統計データの考察 Consideration about Port Statistics Data by Analysis on the Flow of Japan Containerized Cargo	港湾システム研究室 Port Systems Division
409	事業継続支援のための国際物流インフラマネジメント方策に関する基礎的検討 An Examination on Management Policy of Global Logistics Infrastructure,With a View to Supporting Business Continuity	国際業務研究室 International Coordination Division
412	凍結防止剤散布と沿道環境 Spreading De-icing Salts and Roadside Environments	道路環境研究室 Road Environment Division
413	〔実践〕道路景観を阻害する屋外広告物等の除去・改善と地域の景観づくりに関する事例集 Best Practices For Removing Eyesore Commercial Billboards and Improving Landscape	道路環境研究室 Road Environment Division
414	平成18年度道路空間高度化研究室研究成果資料集 Annual Report of Advanced Road Design and Safety Division in FY2006	道路空間高度化研究室 Advanced Road Design and Safety Division
415	平成19年（2007年）能登半島地震建築物被害調査報告 Report of the Building Damage by the Noto Hanto Earthquake in 2007	構造基準研究室 Structual Standards Division
416	平成19年度第１回国土技術政策総合研究所研究評価委員会報告書 Report of the 1st Evaluation Committee of NILIM in FY 2007	研究評価・推進課 Research Administration and Evaluation Division
418	平成19年度 国土技術政策総合研究所講演会講演集 Report of the Lecture Meeting of NILIM(2007)	企画課 Planning Division
419	中国の海域使用権管理制度に関する基礎的調査 Coastal Use Fare System in CHINA	沿岸域システム研究室 Coastal Zone Systems Division
420	AISデータの港湾整備への活用に関する研究 Study on Inflection to the Port and Harbour Development by AIS DATA	港湾計画研究室 Port Planning Division
421	国際空港の機能低下に対する基礎的検討 ―リスクの顕在化による影響― Basic Study on the Functional Decline of the International Airport - Related with Risk and Air Transport -	空港研究部 Airport Department
422	輸送機関分担と単価に着目した国際貿易の品目間類似性および異質性に関する分析 Categorization of Tradable Goods Considering Modal Share and Unit Value	空港研究部他 Airport Department etc
425	道路行政研究会報告書 Road administration study group report	高度道路交通システム研究室 ITS Division
426	オーストラリアの水資源管理に関する調査 Survey of Australia's Water Resources Management	河川研究部他 River Department,Embassy of Japan
427	平成17年（2005年）福岡県西方沖地震におけるダムの挙動 Behaviors of Dams during the West Off Fukuoka Pref,Earthquake	水資源研究室 Water Management and Dam Division
429	重力式コンクリートダムの三次元地震応答解析 ―札内川ダムの三次元解析― 3D-Seismic Response Analysis of Concrete Gravity Dam - Satsunaigawa Dam Analysis -	水資源研究室 Water Management and Dam Division
430	平成19年（2007年）中越沖地震建築物被害調査報告 Building Damage Observations on the Tiigataken Chuetsu-oki Earthquake in 2007	構造基準研究室 Structual Standards Division
435	国土技術政策総合研究所研究評価委員会 平成19年度分科会報告書 Report of the Evaluation Sub Committee of NILIM in FY 2007 Evaluation Committee of NILIM	研究評価・推進課 Research Administration and Evaluation Division
436	中分解能衛生画像における緑地の変遷解析手法に関する研究 A study on the change analysis method of urban green coverage using middle-resolution satellite data	緑化生態研究室 Landscape and Ecology Division
437	第16回アジア地域土木研究所長等会議報告書 Proceedings The 16th Conference on Public Works Research and Development in Asia	国際研究推進室 International Research Division
440	インドネシアの計画的住宅地における二酸化炭素排出量と、将来像代替案の検討 Monitoring.CO2 Emission in Indonesian Planned Housing Complexes and Designing Alternative Future Images	高度情報化研究センター Research Center for Advanced Information Technology
382-400	道路環境影響評価の技術手法 Environment Impact Assessment Technique for Road Project	道路環境研究室 Road Environment Division

アニュアルレポート2008当研究所ウェブサイトにて公開
"2008 Annual Report of NILIM" is now on our website

当所の研究活動と成果を「アニュアルレポート2008」として公表し、それらをホームページにて閲覧することができます。
We publish "2008 Annual Report of NILIM" to show our research activities and accomplishments, and you can see its contents on our website, www. nilim. go. jp.

国土交通省国土技術政策総合研究所
National Institute for Land and Infrastructure Management Ministry of Land. Infrastructure, Transport and Tourism
〒305-0804　茨城県つくば市旭１
Asahi 1, Tsukuba, Ibaraki, 305-0804, Japan
（立原庁舎）〒305-0802　茨城県つくば市立原１
(Tachihara) Tachihara 1, Tsukuba, Ibaraki, 305-0802, Japan
（横須賀庁舎）〒239-0826　神奈川県横須賀市長瀬 3-1-1
(Yokosuka) Nagase 3-1-1, Yokosuka, Kanagawa, 239-0826, Japan
TEL : 029-864-2675　FAX : 029-864-4322
TEL:+81-29-864-2675　FAX:+81-29-864-4322
http://www.nilim.go.jp

No. 26
Autumn 2008