Preliminary Building Damage Assessment using Remote Sensing Data
リモートセンシングによる広域被害把握

Bruno Adriano, Sesa Wiguna,
Erick Mas, Shunichi Koshimura (IRIDeS, Tohoku Univ.)

Junshi Xia (RIKEN AIP), Naoto Yokoya (Univ. of Tokyo)

Contact : koshimura@irides.tohoku.ac.jp

TOHOKU UNIVERSITY

IRIDeS International Research Institute of Disaster Science

RIKEN 革新知能統合研究センター Center for Advanced Intelligence Project

東京大学 THE UNIVERSITY OF TOKYO

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Satellite Data

MAXAR

Copernicus
Europe's eyes on Earth

JAXA

Building Data

Bing Microsoft

International Cooperation Project

SENTINEL ASIA

BUILDING DAMAGE MAPPING METHOD

多様なデータの学習による建物被害把握AIの開発

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Learning from multimodal and multitemporal earth observation data for building damage mapping

Bruno Adriano [a], Naoto Yokoya [b a], Junshi Xia [a], Hiroyuki Miura [c], Wen Liu [d], Masashi Matsuoka [e], Shunichi Koshimura [f]

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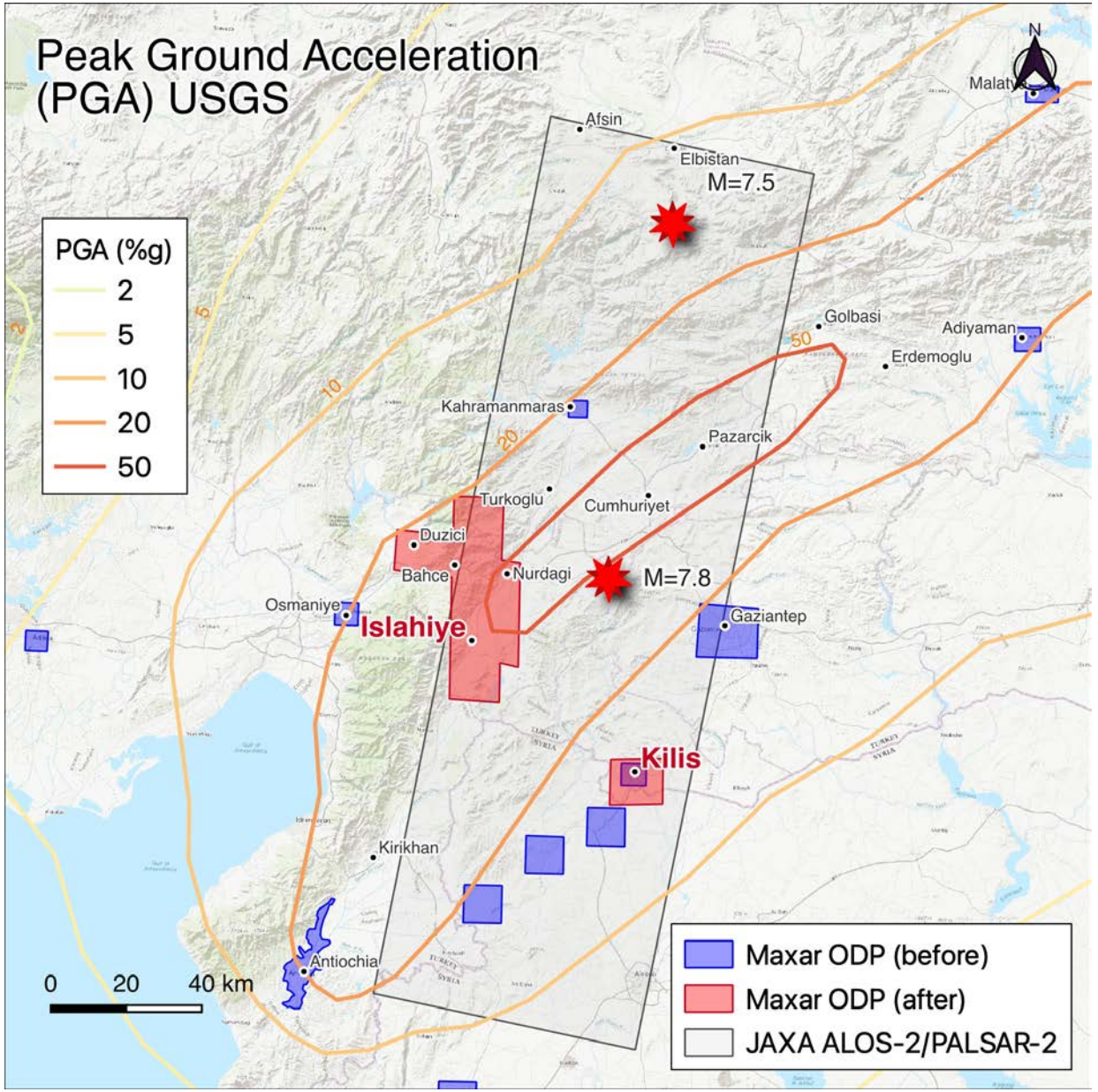
OpenEarthMap: A Benchmark Dataset for Global High-Resolution Land Cover Mapping

Junshi Xia[1,*], Naoto Yokoya[2,1,*,†], Bruno Adriano[1,*], and Clifford Broni-Bediako[1]
[1]RIKEN AIP, Japan {junshi.xia,bruno.adriano,clifford.broni-bediako}@riken.jp
[2]The University of Tokyo, Japan yokoya@k.u-tokyo.ac.jp

https://open-earth-map.org

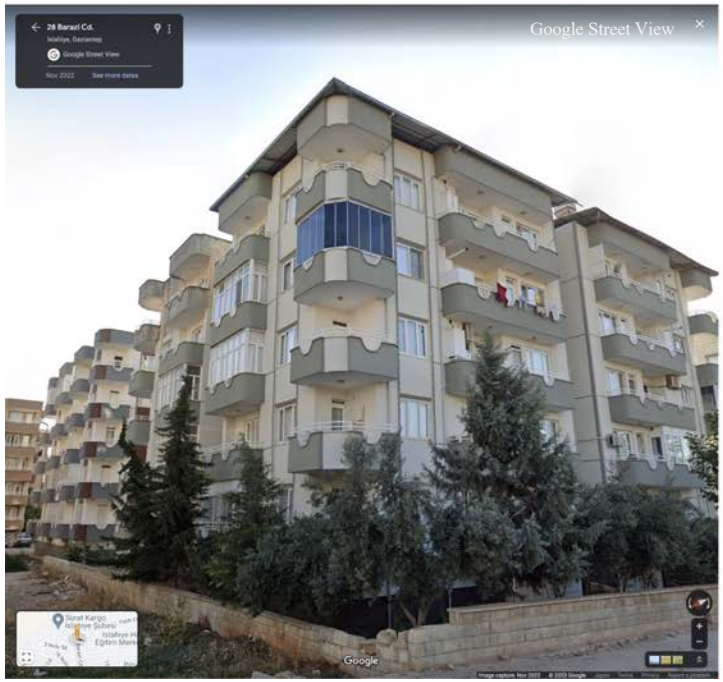
SATELLITE DATA ACQUISITION
衛星観測の状況

- Islahiye (イスラーヒエ)
  (only post-disaster image)
- Kilis (キリス)
  (pre- and post-disaster images)



ISLAHIYE イスラーヒエ
MAXAR POST-EVENT IMAGE
地震後の衛星画像

Building at Fatih St., Islahiye - Collapsed



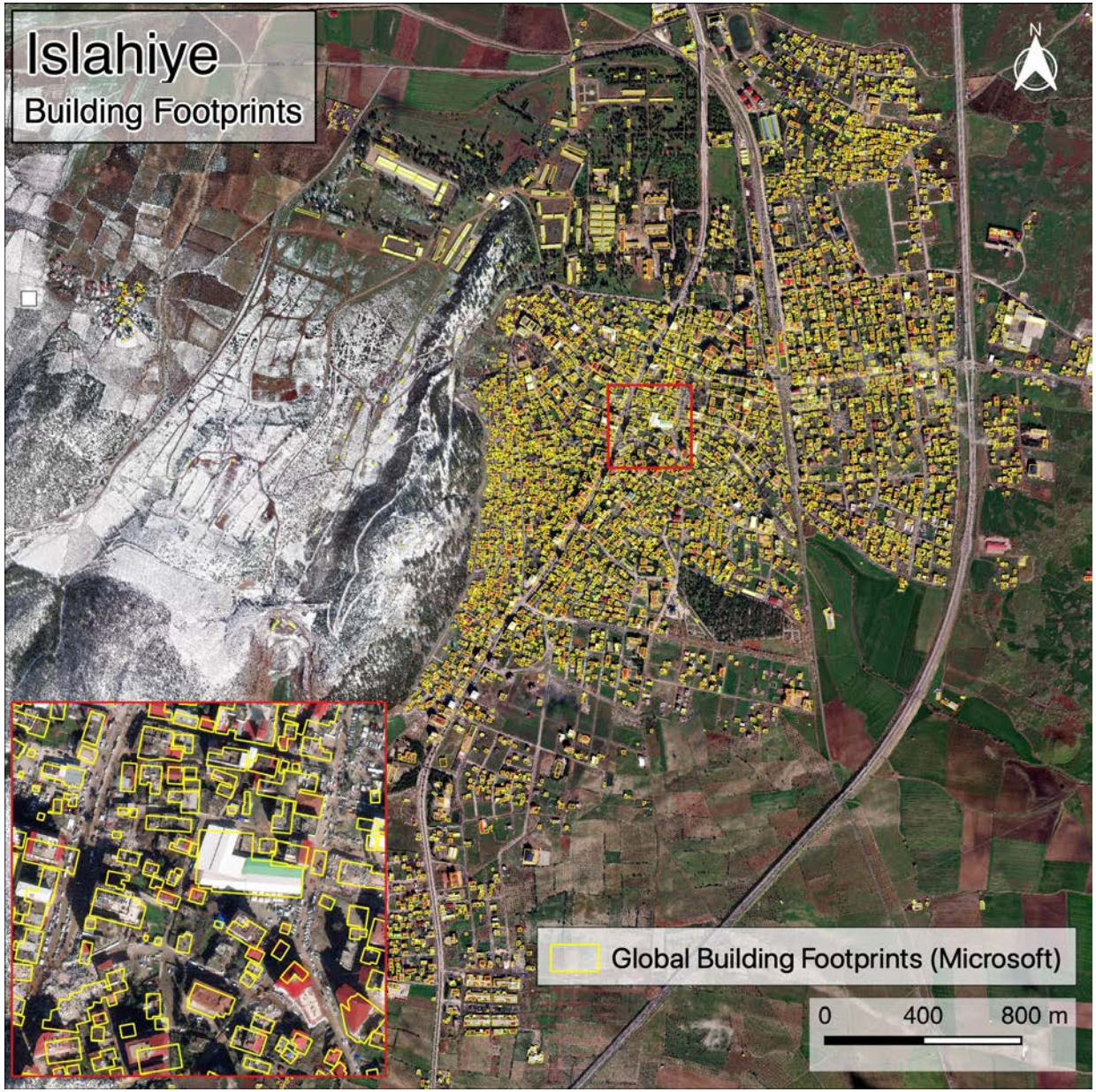
Residence Building at Baradzi St., Islahiye - Collapsed

Building at Atatürk Blvd., Islahiye - Collapsed

ISLAHIYE イスラーヒエ

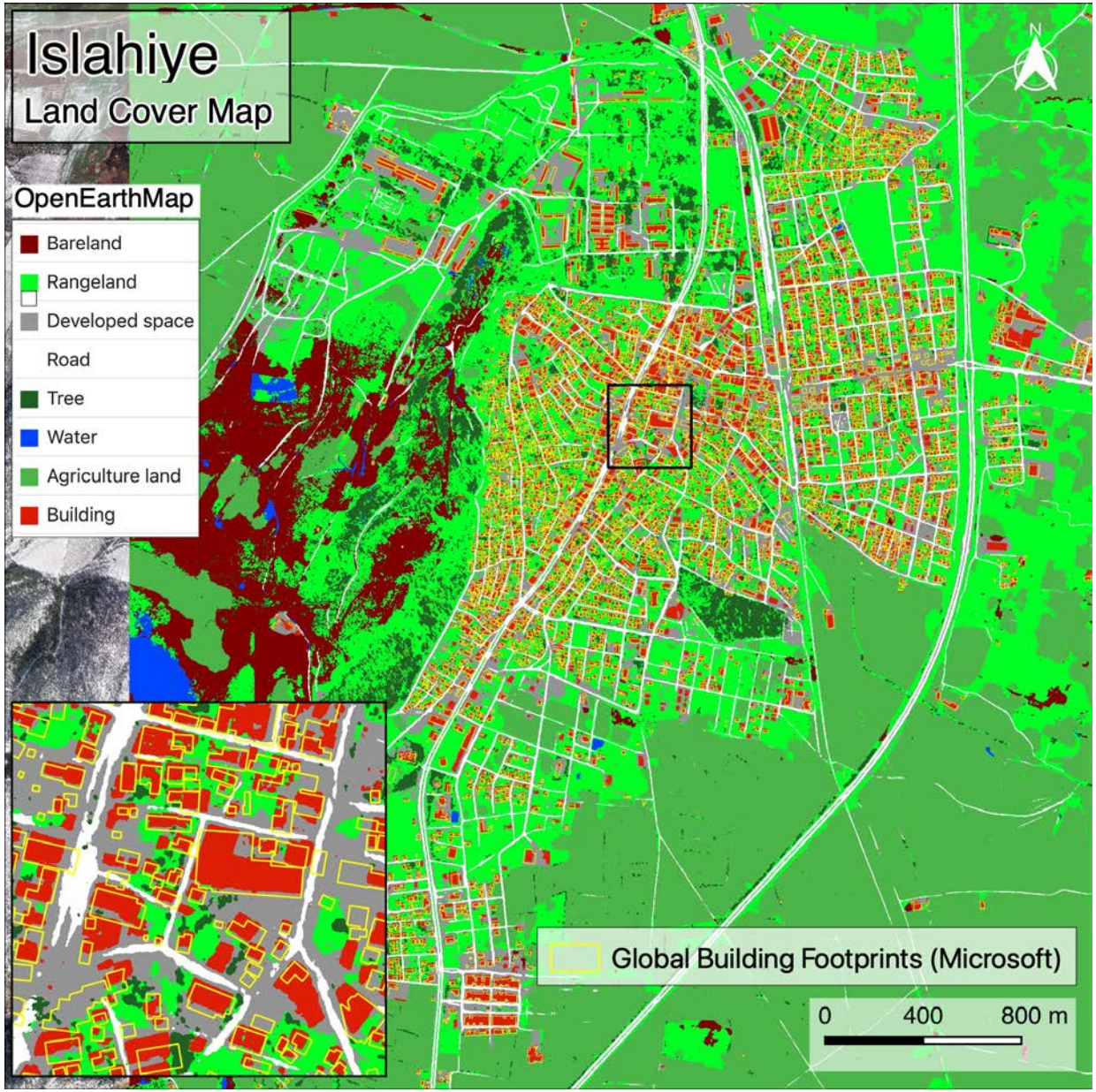
MAXAR POST-EVENT IMAGE MICROSOFT BUILDING FOOTPRINTS

地震後の衛星画像と建物データ



ISLAHIYE イスラーヒエ
AI-BASED LAND COVER MAPPING AND BUILDING EXTRACTION

AIによる建物抽出



PRELIMINARY RESULTS

Microsoft building footprints マイクロソフト建物データ	5,252	Pre-event buildings 地震以前の建物
AI-based recognition of existing buildings 抽出された建物	3,561	Presumably surviving, slight, moderate, severe damage (68 %) 全壊・大規模半壊・一部損壊・無被害
AI-based recognition of collapsed buildings 倒壊と判定された建物	148	Collapsed (2.8 %) 倒壊
Unknown 不明	1,543	To be confirmed (29 %) 要調査

PRELIMINARY FINDINGS 現時点で判明したこと

In Islahiye of Gaziantep Province, there were 5,252 buildings (i.e., Microsoft building footprints), and our preliminary satellite data analysis implies that at least 148 buildings were collapsed, 3,569 buildings still exist, and remaining 1,543 need to be confirmed.

イスラーヒエ（ガジアンテップ県）では，地震前には5,252棟の建物が存在し，衛星画像を用いた暫定解析の結果から少なくとも148棟が倒壊し，3,561棟が残存している（無被害・被害あり含む）ことがわかった．残りの1,543棟については確認が必要である．

FURTHER DISCUSSIONS 今後の課題

- Quantitative identification of the building damage.(建物被害状況の全容解明・量的把握)
- Understanding the relationships among; (被害の特徴の解明)
    1. Shaking intensities (揺れの強さ)
    2. Severity of damage (被害の程度)
    3. Structural types and age (構造・階数・建築年)
    4. Urban developments (都市の開発状況)
    5. Building codes (耐震基準)
- Implementation of rapid damage assessment capabilities (AIによる建物被害判定の自動化と迅速化，社会実装)