



INTENSITY OF BUILDING DAMAGES IN DELMAS COMMUNE, HAITI

Damage analysis of individual
buildings based on post-
earthquake aerial photos and
pre-earthquake satellite
imagery

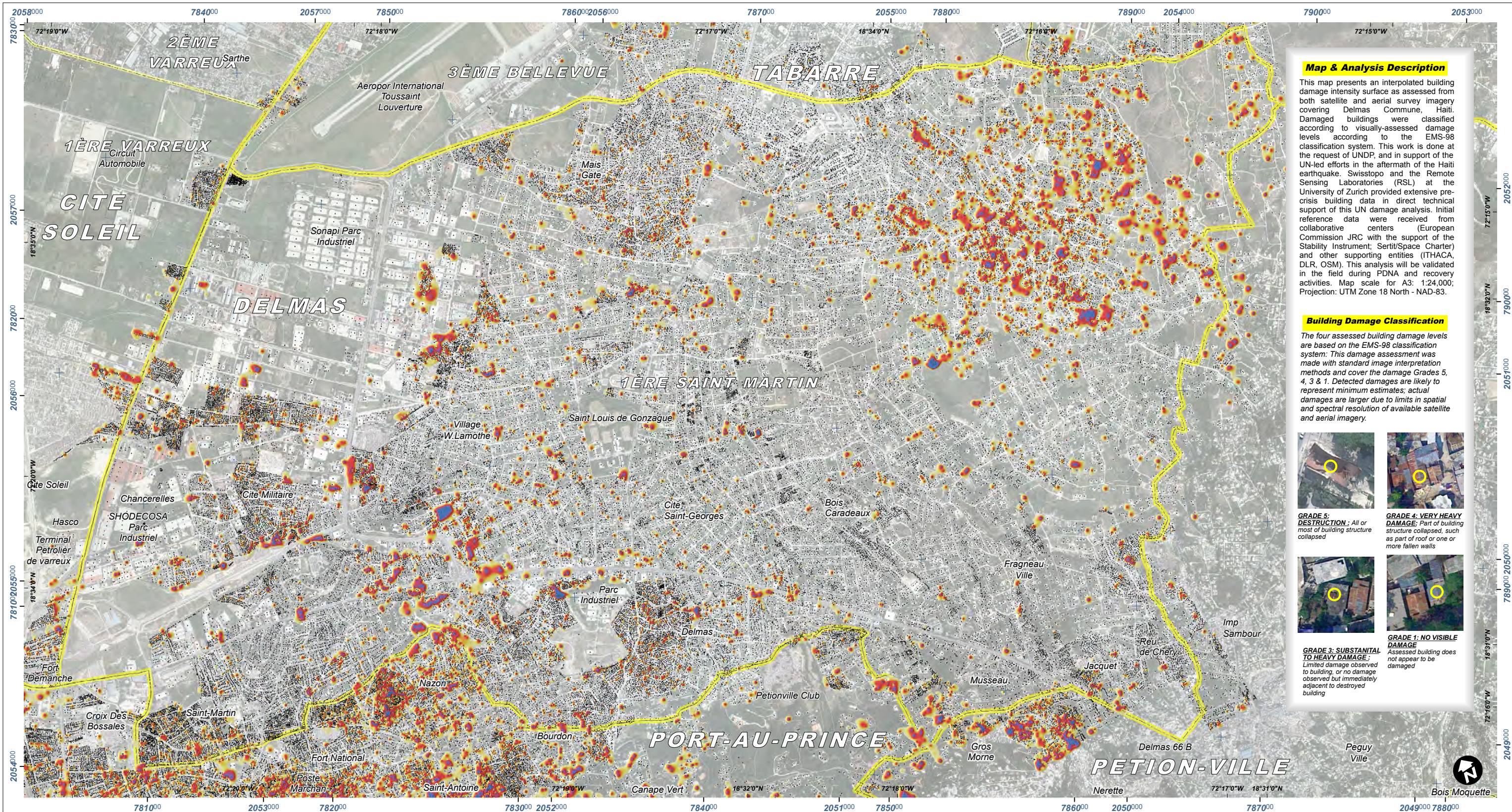
**Earthquake
7.0M**



**3 March 2010
(10:30:00 UTC)**

Version 1.0

Glide No:
EQ-2010-000009-HTI

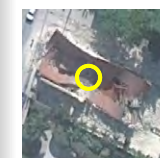


Map & Analysis Description

This map presents an interpolated building damage intensity surface as assessed from both satellite and aerial survey imagery covering Delmas Commune, Haiti. Damaged buildings were classified according to visually-assessed damage levels according to the EMS-98 classification system. This work is done at the request of UNDP, and in support of the UN-led efforts in the aftermath of the Haiti earthquake. Swisstopo and the Remote Sensing Laboratories (RSL) at the University of Zurich provided extensive pre-crisis building data in direct technical support of this UN damage analysis. Initial reference data were received from collaborative centers (European Commission JRC with the support of the Stability Instrument; Seriti/Space Charter) and other supporting entities (ITHACA, DLR, OSM). This analysis will be validated in the field during PDNA and recovery activities. Map scale for A3: 1:24,000; Projection: UTM Zone 18 North - NAD-83.

Building Damage Classification

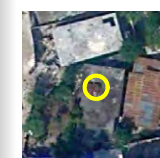
The four assessed building damage levels are based on the EMS-98 classification system. This damage assessment was made with standard image interpretation methods and cover the damage Grades 5, 4, 3 & 1. Detected damages are likely to represent minimum estimates; actual damages are larger due to limits in spatial and spectral resolution of available satellite and aerial imagery.



GRADE 5: DESTRUCTION
All or most of building structure collapsed



GRADE 4: VERY HEAVY DAMAGE
Part of building structure collapsed, such as part of roof or one or more fallen walls

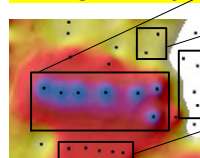


GRADE 3: SUBSTANTIAL TO HEAVY DAMAGE
Limited damage observed to building, or no damage observed but immediately adjacent to destroyed building



GRADE 1: NO VISIBLE DAMAGE
Assessed building does not appear to be damaged

Interpolated Building Damage Intensity



(EMS-98 Classification)

- GRADE 5: Destruction
- GRADE 3: Substantial to Heavy Damage
- GRADE 1: No Visible Damage
- GRADE 4: Very Heavy Damage

- Commune Boundary
- Section Boundary
- Primary / Secondary Rd
- Analysis Extent

The depiction and use of boundaries, geographic names and related data shown here are not warranted to be error-free nor do they imply official endorsement or acceptance by the United Nations. UNOSAT is a program of the United Nations Institute for Training and Research (UNITAR), providing satellite imagery and related geographic information, research and analysis to UN humanitarian & development agencies & their implementing partners.

Map Scale for A3: 1:24,000

UTM grid coordinates given in 1km intervals
Map Data frame rotated 32 degrees from North



Satellite Data WorldView-2
Imagery Dates 19 Dec.2009 / 7-15 Jan. 2010
Resolution 50cm
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Aerial Photos NOAA / Google
Imagery Date 18 Jan / 21 Jan 2010

Copyright NOAA / Google
Source USGS / ERDAS APOLLO WMS
Building Data Swisstopo/RSL-Zurich/UNOSAT
Landcover Data CNIGS, Infoterra, OSM, OCHA
Road & Urban Data Open Street Map
Place Names OCHA, Google Map Maker

Other Data MINUSTAH, USGS, NGA
Elevation Data ASTER GDEM
Source METI & NASA 2009
Damage Analysis UNITAR / UNOSAT
Map Production UNITAR / UNOSAT
Projection UTM Zone 18 North - NAD-83

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