PRELIMINARY SATELLITE-DERIVED DAMAGE ASSESSMENT
KHOST EARTHQUAKE
(21 June 2022, Mw 6.2)

Paktika and Khost Provinces, Afghanistan

Status: Destroyed and damaged structures observed.

Further action(s): full assessment to be conducted
AFGHANISTAN

22 June 2022

AFGHANISTAN

AREA OF INTEREST (AOI)

DISTRICTS

PAKETA

KHOST

MAINSHOCK EARTHQUAKE EPICENTRE (21 June 2022, Mw6.2)
A 6.2 magnitude shallow depth earthquake (~6km) struck the eastern part of Afghanistan on June 21 2022, at 01:30 local time. The earthquake epicentre was located 160km southeast of the capital city of Kabul in Afghanistan’s eastern provinces of Pakteka, SW of the city of Khost close to the Afghanistan-Pakistan borders.

**Damage**

Two provinces have been badly affected: Pakteka and Khost, and within these provinces most destruction and deaths has been reported in the districts Gayan and Barmal (Gyan and Birmil on inset map – page 2). According to media reports dozens of villages are severely affected.

**Deaths and Injuries**

Several sources have reported more than 1000 deaths and 1500 injured with numbers expected to rise.
AOI 1 SPERA DISTRICT, PAKETA PROVINCE (Epicentral area)

Damaged structures and shelters observed

Image center:
69°29'22"E
33°8'6"N

Worldview-2 / 09 June 2021

Worldview-3 / 23 June 2022
AOI 1 SPERA DISTRICT, KHOST PROVINCE
(~13 km from the epicentre)

Damaged structures observed

Worldview-2 / 09 June 2021

Worldview-3 / 23 June 2022

Image center:
69°28'52.896"E
33°12'6.383"N
AOI 1 SPERA DISTRICT, KHOST PROVINCE
(~13 km from the epicentre)

Damaged structures observed

Worldview-2 / 09 June 2021

Worldview-3 / 23 June 2022

Image center:
69°29'20.576"E
33°12'16.611"N
AOI 1 SPERA DISTRICT, KHOST PROVINCE
(∼13 km from the epicentre)

Before

Damaged structures observed

AFTER

Worldview-2 / 09 June 2021

Worldview-3 / 23 June 2022
AOI 1 SPERA DISTRICT, KHOST PROVINCE (~9 km from the epicentre)

Damaged structures and shelters observed

Worldview-2 / 09 June 2021  
Worldview-3 / 23 June 2022
AOI 1 SPERA DISTRICT, KHOST PROVINCE
(~8 km from the epicentre)

Damaged structure, affected roads and shelters observed

Image center:
69°32'55"E
33°10'37"N

Worldview-2 / 09 June 2021

Worldview-3 / 23 June 2022
AOI 1 SPERA DISTRICT, KHOST PROVINCE
(~3 km from the epicentre)

Damaged structure and shelters observed

Worldview-2 / 09 June 2021

Worldview-3 / 23 June 2022
SUMMARY OF FINDINGS

Based on seismic intensities (USGS) and population data (worldpop), about 100,000 people were exposed to strong and very strong shaking in Pakteka and Khost provinces, Afghanistan & Pakistan;

Heavily damaged structures and affected roads can be observed in the epicentral zone as of 23 June 2022;

Temporary shelters observed as of 23 June 2022 in the vicinity of houses.
COPYRIGHTS AND SOURCES

Data sources:

(1) Satellite Image (Post-event)
Worldview-3 / 23 June 2022
Copyright: 2022 Digital Globe
Source: USGS / HDDS

(2) Satellite Image (Pre-event)
Worldview-2 / 09 June 2021
Copyright: 2021 Digital Globe
Source: USGS / HDDS

(3) Ancillary data
Earthquake epicentre: Institut de Physique du Globe De Paris (IPGP)
MMI intensities: USGS
Administrative boundaries: Afghanistan Information Management Services, HDX
Populated places: OpenStreetMap
Analysis: United Nations Satellite Centre (UNOSAT)
Production: United Nations Satellite Centre (UNOSAT)