

Commercial Imagery and Geospatial Intelligence

Stephen Wood, DigitalGlobe Inc.

The Evolution of Analysis

The commercial geospatial intelligence industry has experienced four eras:

1st Era: Resolution

Customer needs
evolve beyond
aerial



DigitalGlobe drives
“sub-meter”
standard

2nd Era: Accuracy

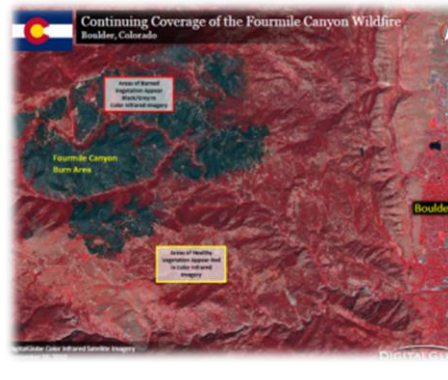
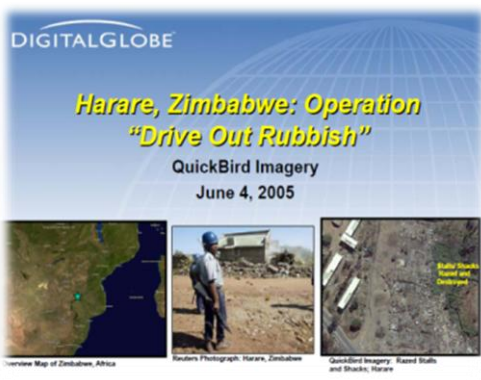
Emergence of map
making industry and
greater accuracy drives
growth



Accuracy specification
of 5.0m CE90;
predicted performance
at 4.6 CE90

“The ultimate value of satellite data comes from integration with other technologies of the information age. Satellite data becomes much more useful after it has been analyzed and fused with other geospatial technologies...”

David B. Sandalow; Assistant Secretary for Oceans and International Environmental and Scientific Affairs; June 6, 2000



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DigitalGlobe drives “one meter” standard

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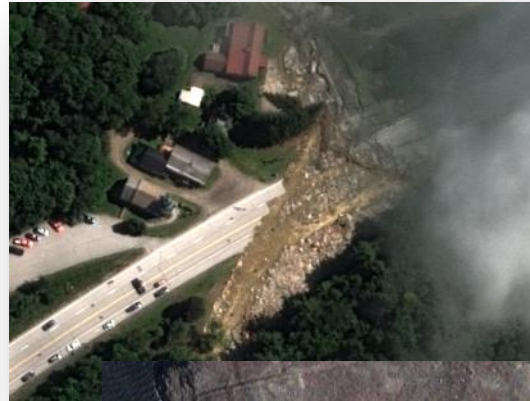
3rd Era: Speed

Reliance on imagery at an all-time high and customer priority becomes speed and relevancy



DigitalGlobe drives on-demand standard

Expanding our Ground Architecture



Delivering images now within minutes and hours after collection

Enabling on-demand access and download

Refreshing imagery frequently of the same locations

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DigitalGlobe drives on-demand standard

4th Era: Analytics

New valuable problem-solving uses emerging and priority becomes measuring on surface and below water



DigitalGlobe drives 8-band standard and custom analysis

Commercial GEOINT: It All Starts With the Constellation

QuickBird

Launched Oct. 2001
4-Band Multispectral
Panchromatic



WorldView-1

Launched Sept. 2007
Panchromatic



WorldView-2

Launched Oct. 2009
8-Band Multispectral
Panchromatic



WorldView-3

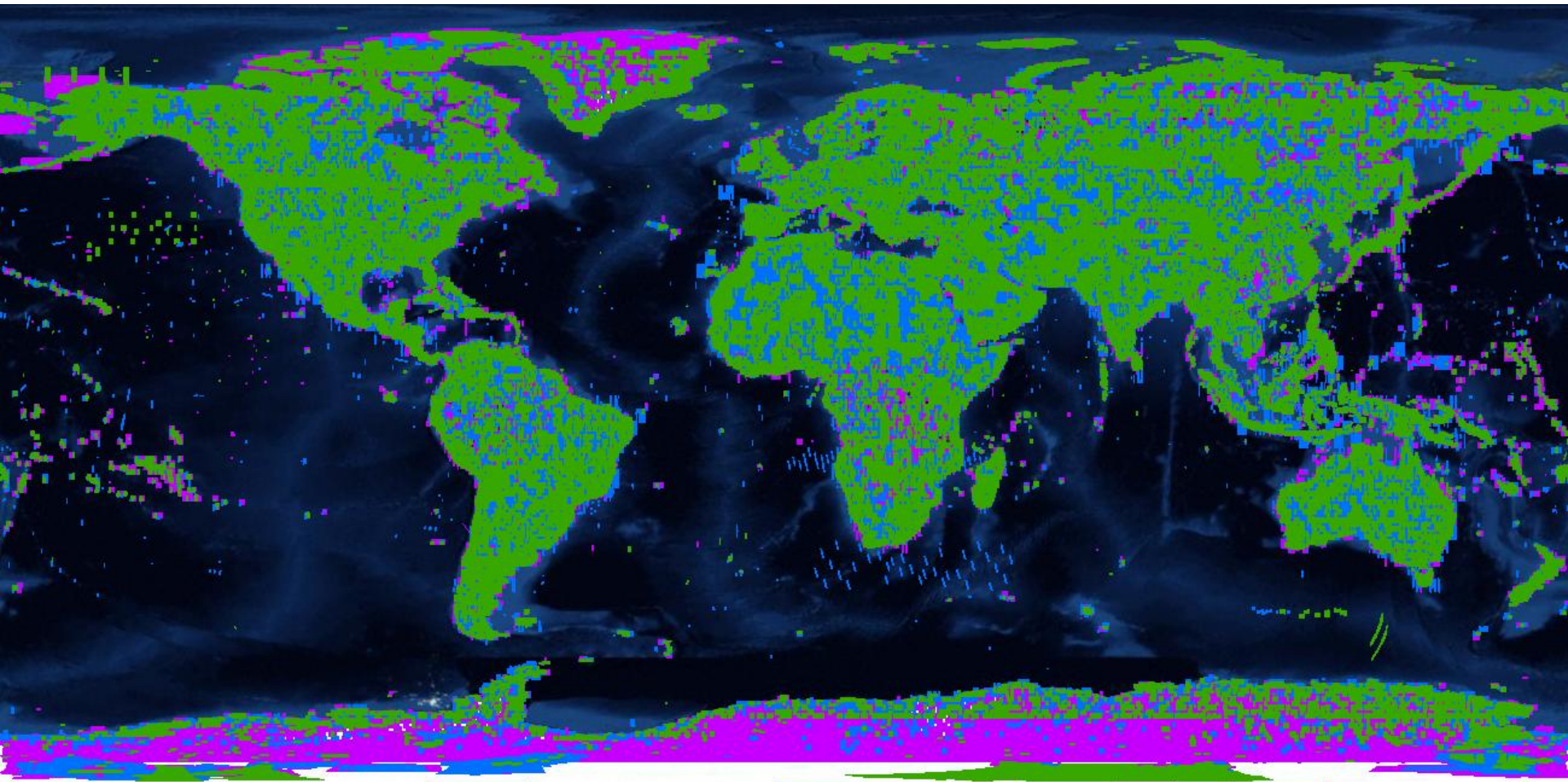
Ready for Launch Late 2014






Current capacity of ~ 975 million km²/year

Unmatched collection, refresh and monitoring capabilities

Global Coverage and a 10 year Time Machine



Total Collects through July 31, 2011

 QuickBird:	496,138,161 km ² (144,650,743 nm ²)
 WorldView 1:	893,988,194 km ² (260,645,253 nm ²)
 WorldView 2:	277,889,819 km ² (81,019,708 nm ²)

Reference: USA landmass is approx. 9.1M km²



DigitalGlobe Image: Giglio Island, Italy | January 17, 2012 | 50cm



Tahrir Square Protests

Cairo, Egypt

30 02 51 N 31 14 04 E



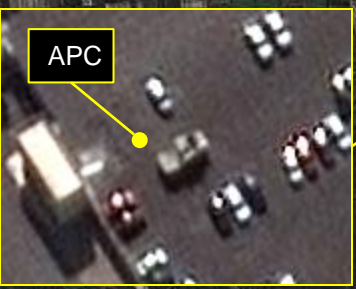
Large Crowd of Protesters



Military Presence at Dumyat Oil Refinery and Port Facility

Dumyat, Egypt

31 27 02 N 31 45 05 E





Fukushima Daiichi Nuclear Power Plant

Okuma, Japan

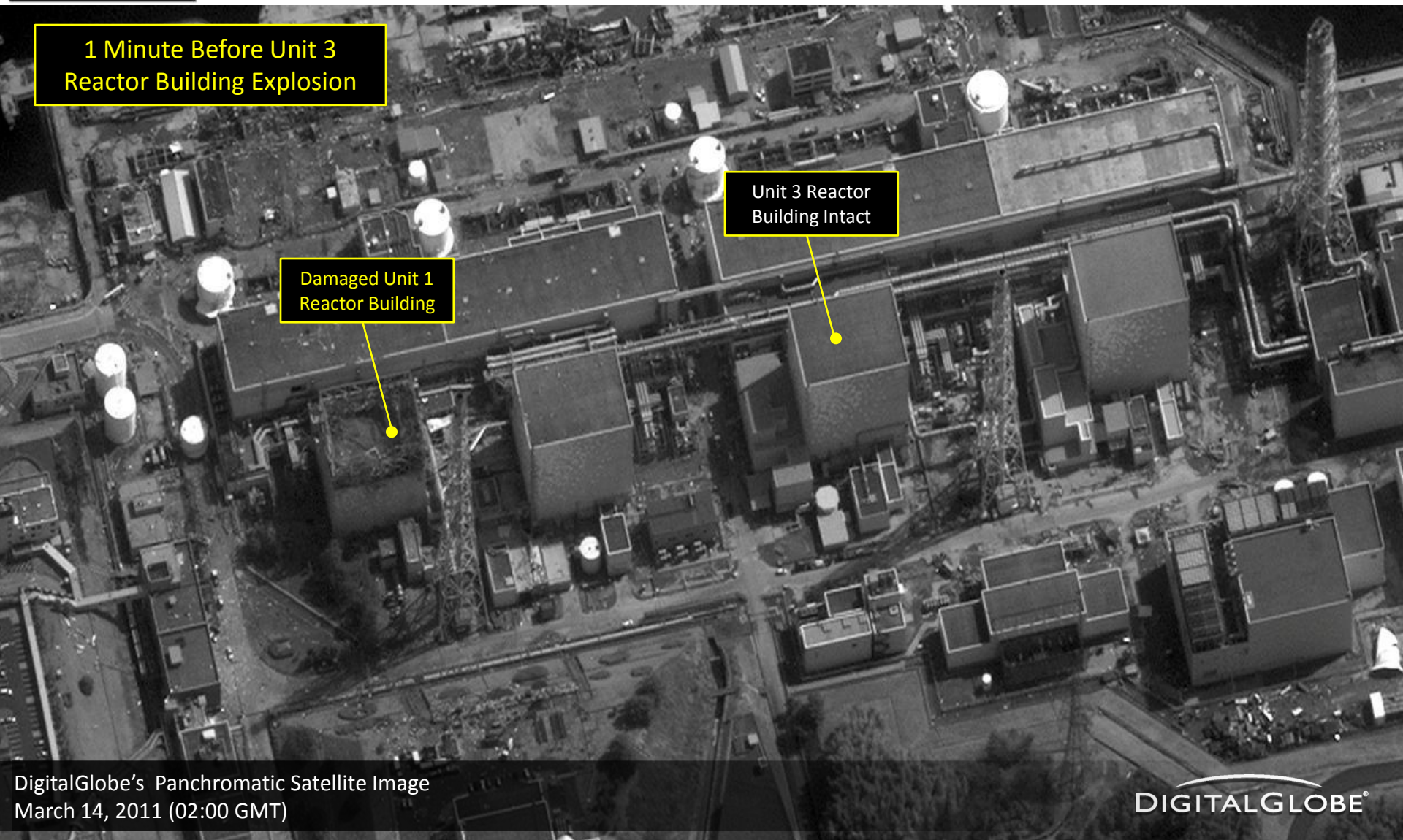
37 25 18N 141 01 56E



1 Minute Before Unit 3
Reactor Building Explosion

Damaged Unit 1
Reactor Building

Unit 3 Reactor
Building Intact



DigitalGlobe's Panchromatic Satellite Image
March 14, 2011 (02:00 GMT)





Fukushima Daiichi Nuclear Power Plant

Okuma, Japan

37 25 18N 141 01 56E



3 Minutes After Unit 3
Reactor Building Explosion

Damaged Unit 3 Reactor Building
(Visible Smoke/Dust Plume Drifting East)

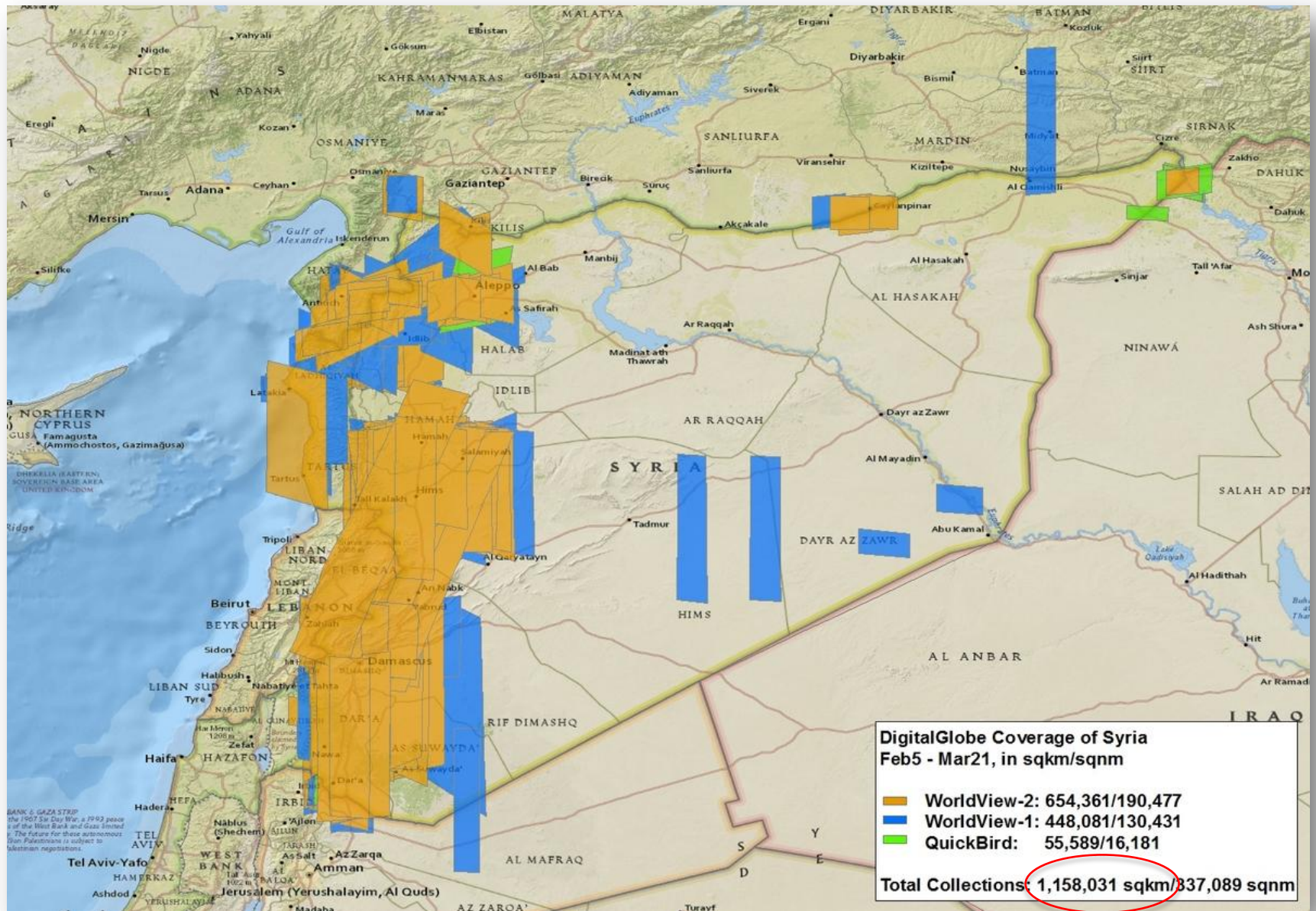
Damaged Unit 1 Reactor Building



DigitalGlobe's Natural Color Satellite Image
March 14, 2011 (02:04 GMT)



An Unrivalled Ability to Monitor





Syrian Military Checkpoint Northeast Of City Homs, Syria

34 46 13N 36 46 16E



Obstacles on Road
to Slow Traffic

Probable Armored
Vehicle

Tank Platoon
(3x tanks)

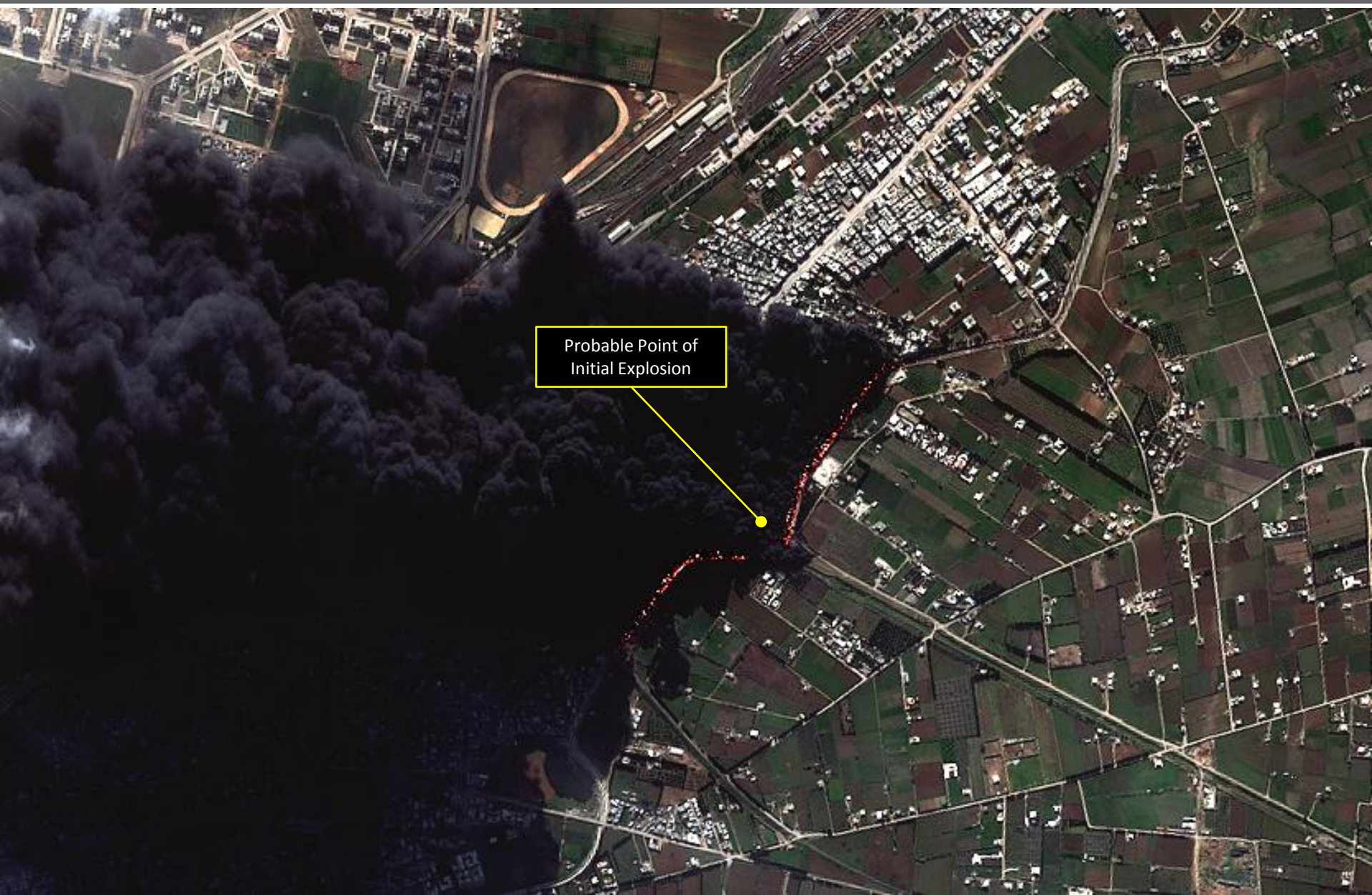
7 km to
Hims



Oil Pipeline Breached and on Fire at Southwest Corner of Homs

Homs, Syria

34 42 16N 36 40 43E



Probable Point of Initial Explosion



U.N. Report Says Syrian Forces Committed Gross

A United Nations report says the Syrian regime has committed "widespread, systematic and gross human rights violations." The report, prepared by a three-member panel of investigators, was made public in Geneva on February 23 and will be discussed during the 19th session of the U.N. Human Rights Council, which



1 2 3

HEADLINES

State Department on Suspending Embassy Operations in Syria

The State Department has suspended all embassy operations in Syria on February 6, 2012 citing a recent report. The Embassy remains committed to the Syrian people from

State's Feltman on Syria

Large numbers of Syrian people are under siege, deprived of basic necessities including food, clean water and medical supplies, says Assistant Secretary Jeffrey D. Feltman, as he testified before a congressional committee on Syria.

Ambassador Rice on Middle East Peace

Ambassador Susan Rice said the U.S. representative to the U.N. remains determined to help Syria obtain nuclear weapons

SECRETARY CLINTON'S SPEECH

February 25, 2012

Remarks on

youth

Firstwatch
February 24, 2012



Civil Unrest in Homs, Syria

DIGITALGLOBE
Analysis Center
FW 00175

MESSAGES

READ MESSAGES FOR
U.S. CITIZENS

NATIONAL

EDUCATIONAL
OPPORTUNITYThe Institute of International Education
has created a Syria Emergency



DigitalGlobe Image: Tongch'ang Ni Launch Facility, North Korea | April 9,2012| 50cm

In-Depth Analysis

down through the pad and out the exhaust deflector on the northwest side. The 27 x 18 m concrete wedge-shaped exhaust deflector extends out from the launch pad on its northwest side and funnels rocket motor exhaust gasses away from the launch pad during launches. Mounted on the surface of the launch pad and on either side of the exhaust shaft are two rails upon which the mobile launch table rides. These rails extend 160 m from the exhaust shaft to an approximately 18 x 12 m foundation located southeast side of the launch pad. This foundation appears to be the future site for a vertical assembly building. An 11 x 11 m mobile launch table (possibly self-propelled), with a 6 m circular exhaust cutout in the center, is mounted on the two rails. For launches the mobile launch table is centered in front of the umbilical tower and over the vertical exhaust shaft and the missile, or space launch vehicle, is mounted on it.

Located immediately adjacent to the vertical exhaust shaft and on its southwest side, is the approximately 11 x 8 m umbilical tower. Attached to either corner of umbilical tower facing the vertical exhaust shaft are 10 x 2.5 m folding servicing/maintenance platform assemblies. These can rotate through 180° to fold either against the sides of the umbilical tower to extend out from it on either side of the vertical exhaust shaft and around any system mounted upon the mobile launch table. If the practices displayed at the Musudan-ni Launch Facility are any guide, these servicing platforms can be covered with tarps to provide some protection from the weather and a small degree of concealment. The umbilical tower is of indigenous construction and similar in design to that located at the Musudan-ni Launch Facility. Taking into consideration both the mobile launch table and the umbilical tower, the launch pad is capable of supporting all known and foreseeable DPRK missile and space launch systems.

Exiting and rising slightly above the launch pad on its southwest side is an approximately 200 m long road that leads to the fuel and oxidizer storage buildings and two other support buildings (possibly for electricity or other utilities). These buildings sit slightly above and 70 m from the launch pad, are

partially bermed and are connected to each other and the umbilical tower by a series of elevated pipelines (and presumably conduits for electrical power). The two larger fuel and oxidizer storage buildings measure 21 m x 14 m (294 m²) and 23 m x 15 m (345 m²). While the two smaller support buildings measure 12 m x 14 m (168 m²) and 10 m x 8 m (80 m²).

A 27 m tall instrumentation tower is located adjacent to the launch pad and immediately northwest of the access road. There is no evidence of lightning towers around the launch pad. There are several small instrumentation and camera bunkers located around the launch pad. Finally, there is a perimeter security fence that almost completely encircles the launch pad.

While published ROK sources state that the launch pad was completed during late 2010, this does not appear to be completely correct. The pouring of a reinforced foundation on the southeast side of the launch pad during construction suggests that it is ultimately intended to construct a vertical assembly building at that location. This is further supported by the fact that the rails for the mobile launch table terminate in the center of this foundation. When the vertical assembly building is constructed it will provide the DPRK with the ability to more capably assemble missiles and space launch vehicles, and to do so relatively free from observation and unaffected by weather conditions—a capability not present at the Musudan-ni Launch Facility.

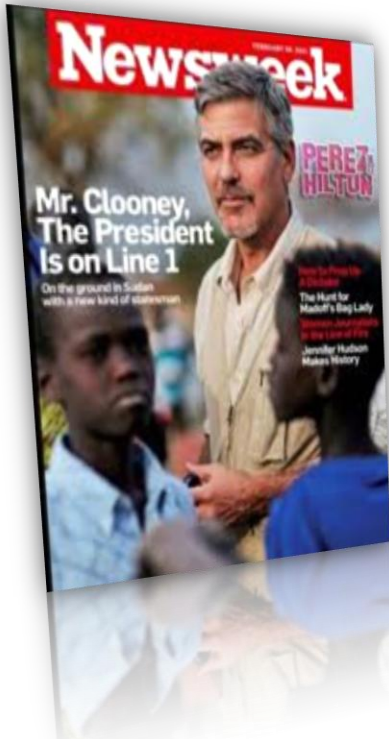
The following is a list of the main components which make up the launch pad:

- A. Umbilical Tower w/ Crane & Maintenance Stands
- B. Rail-mounted Mobile Launch Platform
- C. Exhaust Deflector
- D. Partially-Underground Fuel/Oxidizer Storage
- E. Handstand (L=196m x W=61m)
- F. Instrumentation Tower
- G. Area for Future Vertical Processing Building



Marsh 28, 2012, 39 39 35N 124 42 11E

Analysts Without Borders

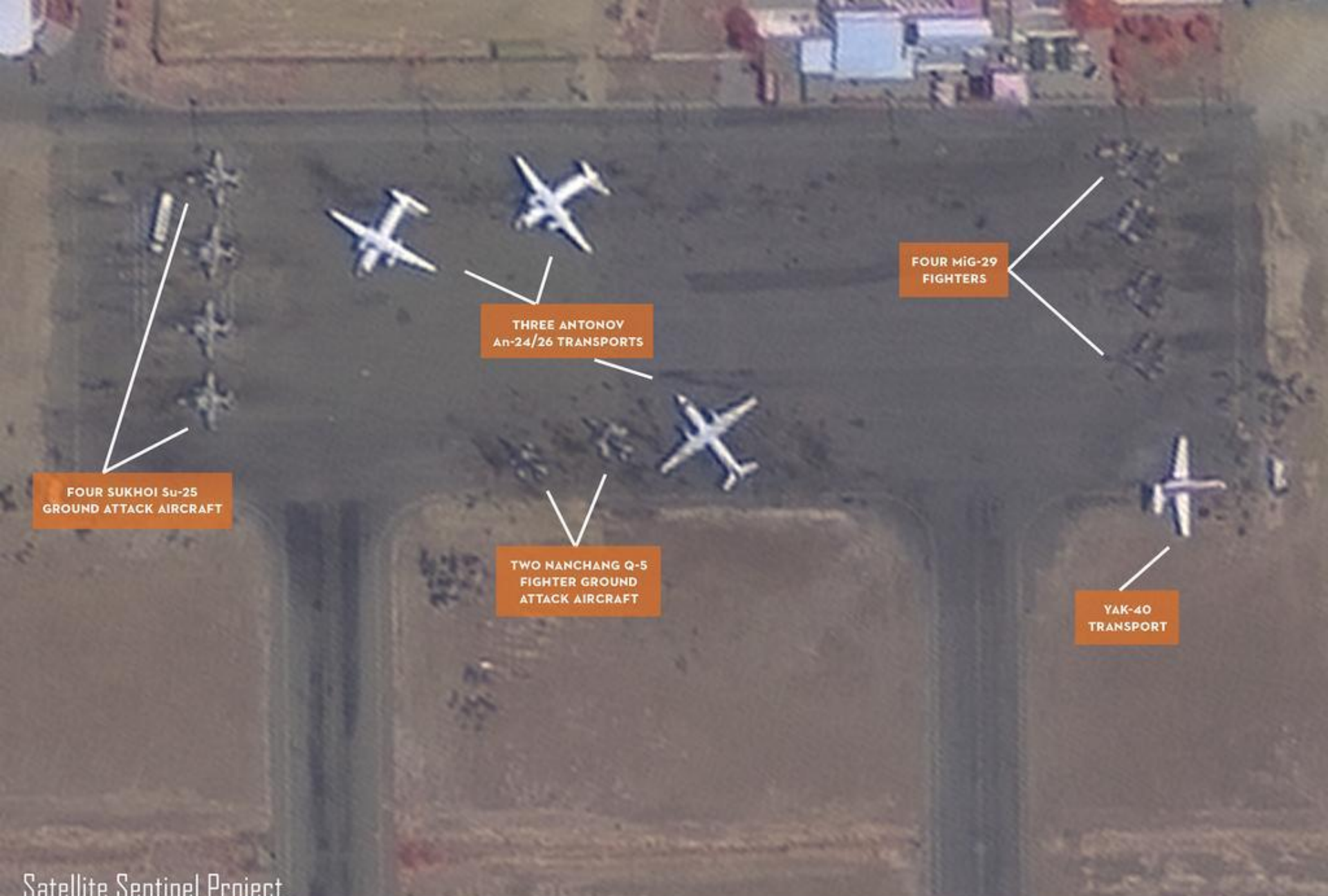


"We can witness in near real-time and put all parties on notice that if they commit war crimes, we will all be watching, and pressuring policymakers to take action."

George Clooney

The Satellite Sentinel Project:

- Conceived by George Clooney
- Combines DigitalGlobe satellite imagery and analysis with additional analysis, field reports and collaboration with the Enough Project and the Harvard Humanitarian Initiative.
- Provides early warning system to deter mass atrocities. Focuses world attention on human rights and human security concerns.



FOUR SUKHOI Su-25
GROUND ATTACK AIRCRAFT

THREE ANTONOV
An-24/26 TRANSPORTS

FOUR MIG-29
FIGHTERS

TWO NANCHANG Q-5
FIGHTER GROUND
ATTACK AIRCRAFT

YAK-40
TRANSPORT

4 APRIL 2012



16 APRIL 2012



Satellite Sentinel Project

We Must Make it Easy to Use and Understand



Director of National Intelligence Photo