**Conflict Analysis: Zawiyah, Libya (as of 08 March 2011)**

**Analysis:** A review of the city of Zawiyah was conducted using a satellite image acquired 8 March 2011 to document impacts of fighting between Libyan Government and armed opposition forces. This fighting took place between 24 February and 10 March, when Libyan Government forces declared control of the city. Satellite imagery analysis sought to identify evidence of fighting and damage in the area. Armoured vehicles, road blocks consisting of sand and other materials, excavated areas, and possible scorch marks are visible in the satellite image. In addition, significant numbers of light trucks are apparent in groups and convoys throughout much of the city.

**Overview:**
- **MARTYRS’ SQUARE**
  - Sand road block demolished
  - Tanks with guns aimed at square
  - Excavation area
  - Scorch marks on road
  - Sand road block demolished

**Data Sources:**
- **Satellite Data:** GeoEye-01
  - Imagery Date: 08 March 2011
  - Resolution: 50 cm
  - Copyright: GeoEye 2011
  - Source: GeoEye EyeQ
  - Road Data: Google MapMaker (2011)

**Analysis:** UNITAR / UNOSAT

**Production Date:** 23/03/2011

**UNOSAT Activation:** CE20110220LBY

**Coordination:**
- **Civil Conflict Analysis**
- **Overview Map**
- **Units:** 1:1,200
- **Scale for A4:**

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**Analysis Conducted with:** ArcGIS v10

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Zawiyah Conflict Analysis
By UNITAR/UNOSAT – 22 March 2011

ANALYSIS BACKGROUND: This is a satellite based analysis of events in the city of Zawiyah, Libya, on the morning of 8 March 2011. Zawiyah, lying about 40 kilometers west of Tripoli, was the site of significant fighting between Libyan Government forces and armed opposition elements. Combat began on 24 February and occurred almost daily until 10 March, when Libyan Government forces declared control of Zawiyah. Armour, artillery (including multiple rocket launcher systems), mortars, and regular and irregular infantry were used in the fighting according to media and other reporting. March 8 saw the largest assault on the city, with reports indicating as many as 50 tanks and 120 light trucks attacking in three different areas of Zawiyah. Fighting in Zawiyah resulted in significant damage to the city witnessed by the UN Humanitarian Coordinator on 14 March.

ANALYSIS RESULTS: UNOSAT analyzed an image collected at about 11:00am local time on 8 March by the GeoEye-1 satellite. Military hardware and other discrete features visible in the imagery are summarized in Table 1. In addition to these discrete features 88 concentrations of light trucks were visible in the city. These concentrations generally included three or more vehicles grouped together, often around intersections or on roadsides. In addition, at least three convoys of such vehicles on the roads are visible as well. A variety of damage to the city was also documented at 24 locations including debris and scorch marks.

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Table 1: Discrete Features

<table>
<thead>
<tr>
<th>Features Identified</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tanks</td>
<td>12</td>
</tr>
<tr>
<td>Self-propelled artillery</td>
<td>1</td>
</tr>
<tr>
<td>Armored personnel carriers (possible)</td>
<td>4</td>
</tr>
<tr>
<td>Infantry fighting vehicles (possible)</td>
<td>2</td>
</tr>
<tr>
<td>Heavy equipment transports</td>
<td>5</td>
</tr>
<tr>
<td>Road blocks and/or barriers</td>
<td>41</td>
</tr>
</tbody>
</table>

1 BBC: http://www.bbc.co.uk/news/world-africa-12673956
2 The Guardian: http://www.guardian.co.uk/world/2011/mar/04/libya-rebels-civil-war-gaddafi
5 BBC: http://www.bbc.co.uk/news/world-africa-12673956
UNOSAT Analysis Overview of Zawiyah, Libya: 08 March 2011
Vehicle and Conflict Zone Assessment

Civil Conflict
Production Date: 23/03/2011
GLIDE Code: OT-2011-000025-LBY
UNOSAT Activation: CE20110220LBY

Conflict analysis by Type:
- Armoured Vehicle
- Vehicle Concentration
- Road Block

Functional Road Class
- Highway
- Local/Urban

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Map Scale for A4: 1:48,700

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Civil Conflict

Conflict Analysis Focus 1: Zawiyah (as of 08 March 2011)

Satellite Data: GeoEye-01
Imagery Date: 08 March 2011
Resolution: 50 cm
Copyright: GeoEye 2011
Source: GeoEye EyeQ
Conflict data: UNITAR/UNOSAT
Administrative Data: UNCS & UNITAR/UNOSAT
Analysis: UNITAR/UNOSAT
Production: UNITAR/UNOSAT
Coordinate System: UTM Zone 33N
Datum: WGS 1984
Analysis conducted with ArcGIS v10

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Satellite Data: GeoEye-01
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Production: UNITAR / UNOSAT

Coordinate System: UTM Zone 33N
Datum: WGS 1984
Analysis conducted with ArcGIS v10

Heavy equipment transports

Large concentration of light trucks in area

Light trucks
UNITAR/UNOSAT
satellite solutions

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