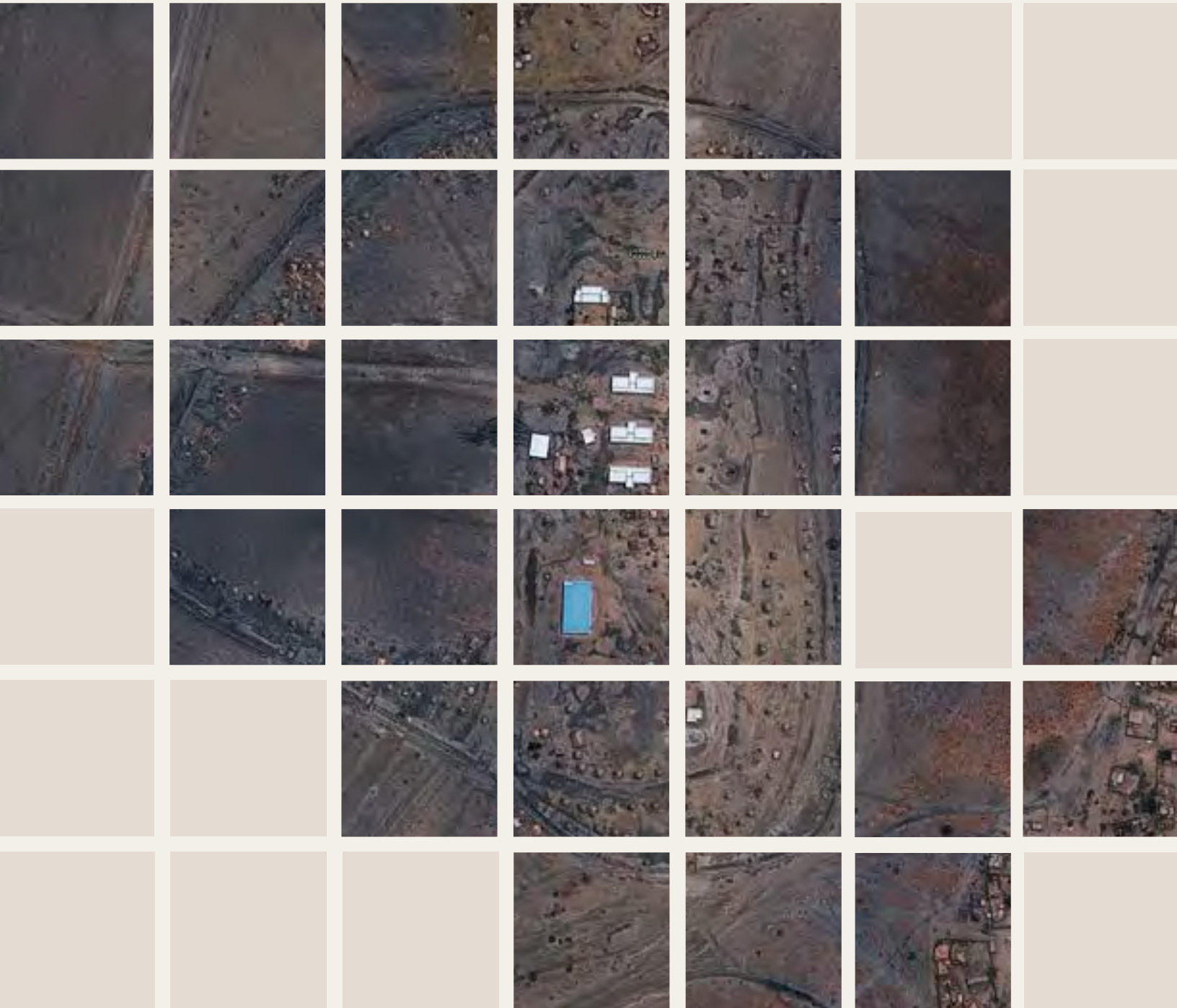


# Troops in the Demilitarized Zone

Confirmation of Violations by Sudan and South Sudan

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Satellite Sentinel Project

Monitoring the Crisis in the Sudans

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Confirmation of Violations by Sudan and South Sudan

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**COVER:** DigitalGlobe imagery of Keri Kera (Abd as-Salam), White Nile, Sudan on May 6, 2013.

Satellite Sentinel Project

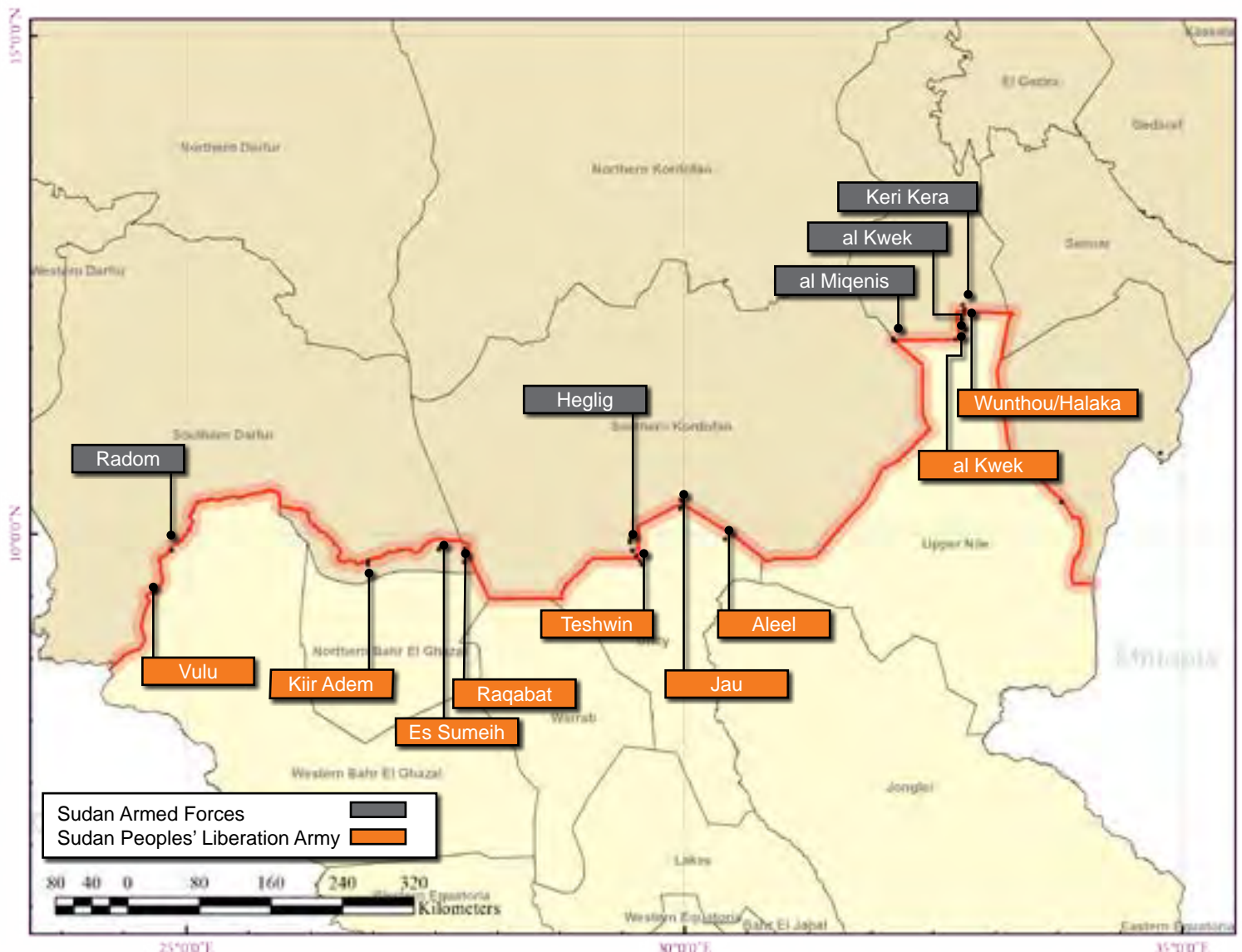
Despite their pledges to the contrary, DigitalGlobe satellite imagery acquired in May and June 2013 over portions of the demilitarized zone border proves that both countries were still in violation of their bilateral agreement in at least 14 locations within the zone. The Satellite Sentinel Project, or SSP, is monitoring Sudan and South Sudan's shared border and tracking adherence to pledges from both countries to withdraw all troops to their respective sides, creating a 12.4 mile, or 20 kilometer, wide demilitarized zone.<sup>1</sup> New DigitalGlobe satellite imagery, acquired in June 2013, shows that both Sudan and South Sudan retain prohibited and previously undetected military presence in multiple locations within the demilitarized zone. In an early May 2013 report titled "Broken Agreement," SSP revealed previous instances of noncompliance based on April 2013 imagery of the Kiir Adem and Heglig areas.<sup>2</sup> This follow-up piece offers an update on both Sudan and South Sudan's compliance with the demilitarization agreement as of June 3, 2013.

Satellite imagery supports the conclusion that the Sudan Peoples Liberation Army, or SPLA, maintain military installations or checkpoints in at least nine locations along the border, while the Sudan Armed Forces, SAF, have positions in at least five locations along the border, some with visible tanks and heavy artillery.

### Creating a buffer zone

In September 2012, the two Sudans agreed to create a safe demilitarized buffer zone, or SDBZ, along their shared border in an effort to separate their armed forces and reduce the likelihood of cross-border conflict.<sup>3</sup> The security arrangements agreement requires that both sides remove all armed forces from the SDBZ and establish a joint border-verification mechanism to track compliance and investigate alleged violations. The presence of either side's military or armed civilians within the exclusion zone is a clear violation of the terms of the agreement.<sup>4</sup> The governments of Sudan and South Sudan bear the obligation of ensuring that no troops or armed elements of any kind are present within the demilitarized buffer zone. In early March 2013 Sudan and South Sudan agreed to implement the September agreements.<sup>5</sup> These agreements have recently been put into jeopardy by Sudanese President Omar al Bashir's rhetoric repudiating all of the nine cooperation agreements signed in September 2012 between Sudan and South Sudan. At this particularly sensitive moment, the persistence of military installations within the demilitarized zone is destabilizing. If the two countries return to war, these bases will likely become flashpoints.

**FIGURE 1: Approximate alignment of forces in Safe Demilitarized Border Zone (SDBZ)**



*Boundaries and names used on this map for illustration purposes only*

All forces were required to be completely out of the SDBZ by April 5, 2013.<sup>6</sup> The United Nations Interim Security Force for Abyei, or UNISFA, has conducted missions to observe compliance at various locations in South Sudan, including Wunthou and Kiir Adem, and locations in Sudan, including al Kwek and Radom.<sup>7</sup> According to the head of the UNISFA mission, “these flights confirmed the absence of military presence” in these places.<sup>8</sup> A review by DigitalGlobe Analytics, or DGA’s, of satellite imagery from June 2013 concludes the opposite.



FIGURE 2: Reinforced SAF Infantry Company



DigitalGlobe Image  
February 13, 2012



DigitalGlobe Image  
May 6, 2013



DigitalGlobe Image  
June 3, 2013

(8.5km North of Border) Keri Kera (Abd as-Salam), White Nile, Sudan

### Noncompliance at Keri Kera, White Nile, Sudan

Sudan continues to maintain an SAF-reinforced infantry company within the demilitarized zone of the border at Keri Kera—also known as Abd as-Salam (see Keri Kera in Figure 1). DGA has determined that an SAF tank- and artillery-supported infantry unit has been present at Keri Kara for more than two years. New imagery dated June 3, 2013, confirms that the artillery howitzers remain within the compound despite the demilitarization pledge which forbids all weapons. Since a tent was erected where the tanks have historically parked, DGA cannot confirm or deny that presence of tanks under the tent. Additionally, at least 100 tents and other small structures are still located within the SAF earthen-berm defensive position. DGA concludes that these types of tents and structures (see Figure 2) are consistent with a military, rather than civilian presence. The presence of this unit, located five miles, or 8.5 kilometers, north of the border, represents a documented violation of the government of Sudan's obligations.



FIGURE 3: Elements of Reinforced SPLA Infantry Battalion



DigitalGlobe Image  
December 26, 2012

(7.5km South of Border) Wunthou, Upper Nile, South Sudan  
DigitalGlobe Image  
May 6, 2013

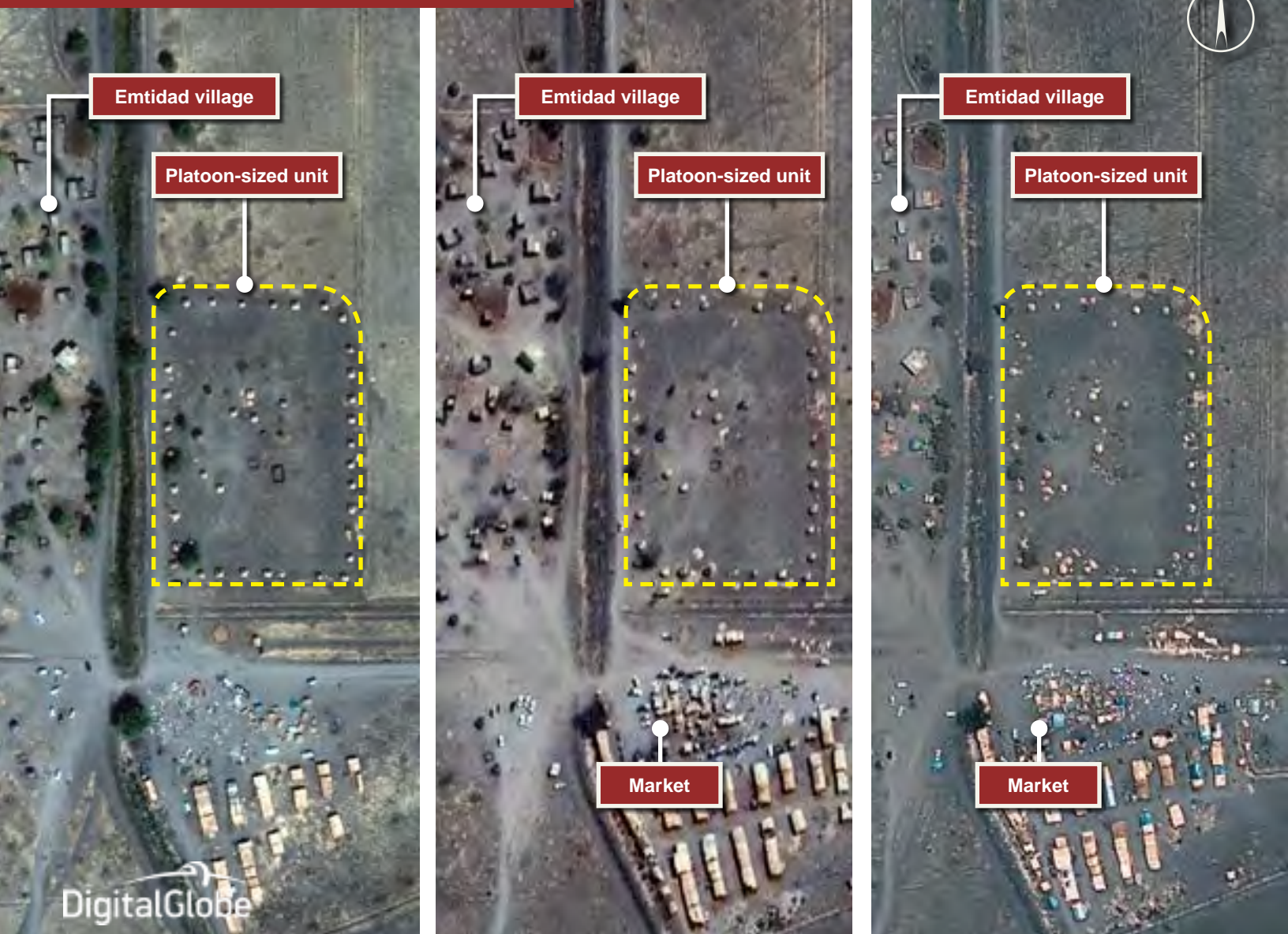
DigitalGlobe Image  
June 3, 2013

### Noncompliance at Wunthou, Upper Nile, South Sudan

June 3, 2013, imagery documents South Sudan's noncompliance with the agreement at Wunthou. Imagery shows that the SPLA continues to occupy a defensive position at Wunthou—also known as Halaka—which is about five miles, or 7.5 kilometers, south of the border, with elements of a reinforced infantry battalion. The four tanks, which imagery shows were present on December 26, 2012, remain within the facility. At least 200 tents and temporary structures line the inside of the earthen-bermed camp and another 150 tents and structures are centrally located within the berms. These tents may support the families of SPLA personnel stationed at this location. (see Figure 3)



FIGURE 4: Probable SPLA Platoon-Sized Unit



DigitalGlobe Image  
December 26, 2012

(3.5km South of Border) Emtidad, Upper Nile, South Sudan  
DigitalGlobe Image  
May 6, 2013

DigitalGlobe Image  
June 3, 2013

In addition, a small platoon-sized infantry unit that probably belongs to the SPLA is located within 2.5 miles, or 4 kilometers, of the border at the village of Emtidad, Upper Nile State, South Sudan. This unit is positioned just north of a market area immediately east of the village and consists of approximately 30 tents dispersed around a perimeter of probable foxholes. (see Figure 4)

The existence of the defensive position at Wunthou with a reinforced infantry battalion and the platoon-sized infantry unit at Emtidad represent documented violations of the government of South Sudan's obligations under the March 2013 implementation modalities for the security arrangements.



FIGURE 5: SPLA Defensive Position



DigitalGlobe Image  
October 10, 2012

DigitalGlobe Image  
April 11, 2013

Kiir Adem, 14 Mile Area  
DigitalGlobe Image  
May 21, 2013

### Kiir Adem

DigitalGlobe satellite imagery dated May 21, 2013, confirms the continued presence of two SPLA defensive infantry installations within the SDBZ just below the Kiir river in the hotly contested 14-mile area. There have been no changes in the Kiir Adem installations between the April 14, 2013, imagery that the DigitalGlobe Analytics reviewed for the original “Broken Agreement” report and the end of May 2013. According to DigitalGlobe’s analysis, no heavy weapons are present at these locations, but tents are visible within the earthen-bermed positions. Maintaining defensive military installations within the SDBZ is a violation of the terms of the security arrangements, but ground confirmation is necessary.



FIGURE 5: SAF Defensive Position



DigitalGlobe Image,  
December 26, 2012



al Kwek (al-Kuek), White Nile, Sudan  
DigitalGlobe Image,  
May 8, 2013

### Some compliance at al Kwek

Imagery taken on May 8, 2013, of the al Kwek area of the White Nile State in Sudan and the former village of Kuek B in the Upper Nile State in South Sudan indicates that most of an SAF-reinforced infantry company departed the area (see Figure 5). DGA previously observed the Sudan Armed Forces deployed defensively around the village in the December 26, 2012 imagery. This unit historically consisted of three tanks and at least 20 technicals—trucks with machine guns mounted in the cargo bed. This equipment, along with a number of tents, is no longer visible in the May 8, 2013 imagery.

FIGURE 6: SAF and SPLA Defensive Positions



al Kwek (al-Kuek), Area Overview, White Nile State, Sudan  
DigitalGlobe Natural Color Image, May 8, 2013

While all of that equipment has been removed, the imagery shows that some tents remain within the SAF earthen-bermed location. Since no military equipment was observed in the most recent imagery, ground verification will be necessary to confirm the absence of ground troops. DGA's review of this imagery, however, particularly of the earthen-bermed position, confirms that this positioning of tents and foxholes is consistent with a military rather than civilian presence.

A probable SPLA unit without heavy weapons established a defensive line approximately 500 meters south of the border at al Kwek in January 2012, and it remains in place in the May 8, 2013, imagery. (see Figure 6) The defensive line is approximately 2.5 kilometers long and consists of tents dispersed behind the line of foxholes. No military equipment was observed in the May 8, 2013, imagery, so ground verification would be necessary to establish the presence of armed troops. DGA's review of this imagery, however, confirms that this positioning of tents and foxholes is consistent with military rather than civilian presence.



FIGURE 7: SAF Unit within Village of Radom



DigitalGlobe Natural Color Image,  
November 20, 2012

Radom, Southern Darfur, Sudan  
DigitalGlobe Natural Color Image,  
May 23, 2013

### Some compliance at Radom

The May 13, 2013, DigitalGlobe imagery of Radom, a SAF outpost shows permanent buildings and seven tents still present and dispersed around the earthen-bermed perimeter. When previously observed on November 20, 2012, this facility, which is located 1.3 kilometers north of the Kiir River, included three Armored Personnel Carriers, or APC, several trucks, at least three mortar pits, and a shed that could have contained three tanks. (see Figure 7) DigitalGlobe Analytics review of the May 2013 imagery concludes that the vehicles and many of the support tents are no longer present. But since permanent buildings and seven tents remain, ground inspection is necessary to validate the absence of armed personnel at this facility. In DigitalGlobe analysts' experience, SAF forces do not leave tents erected if they are not being used.

## Al Miqenis

Al Miqenis (El-Seriha) is a town positioned on the border at the juncture of South Kordofan and White Nile States in Sudan and Upper Nile State in South Sudan. (see Figure 8) There are three SAF deployments around this town and all are within 2 kilometers of the border.

Al Miqenis SAF defensive post has been present since at least 2011 and was manned by two tank platoons, one howitzer battery and probably an infantry company. As of May 29, 2013, the earthen-bermed installation is manned by three tanks (barrels are observed protruding from an environmental cover), two artillery batteries (4 howitzers), three technicals, several SUV-type vehicles and two cargo trucks. More than 120 tents or structures provide support and shelter to the reinforced infantry company that DitalGlobe Analytics believes is billeted here.

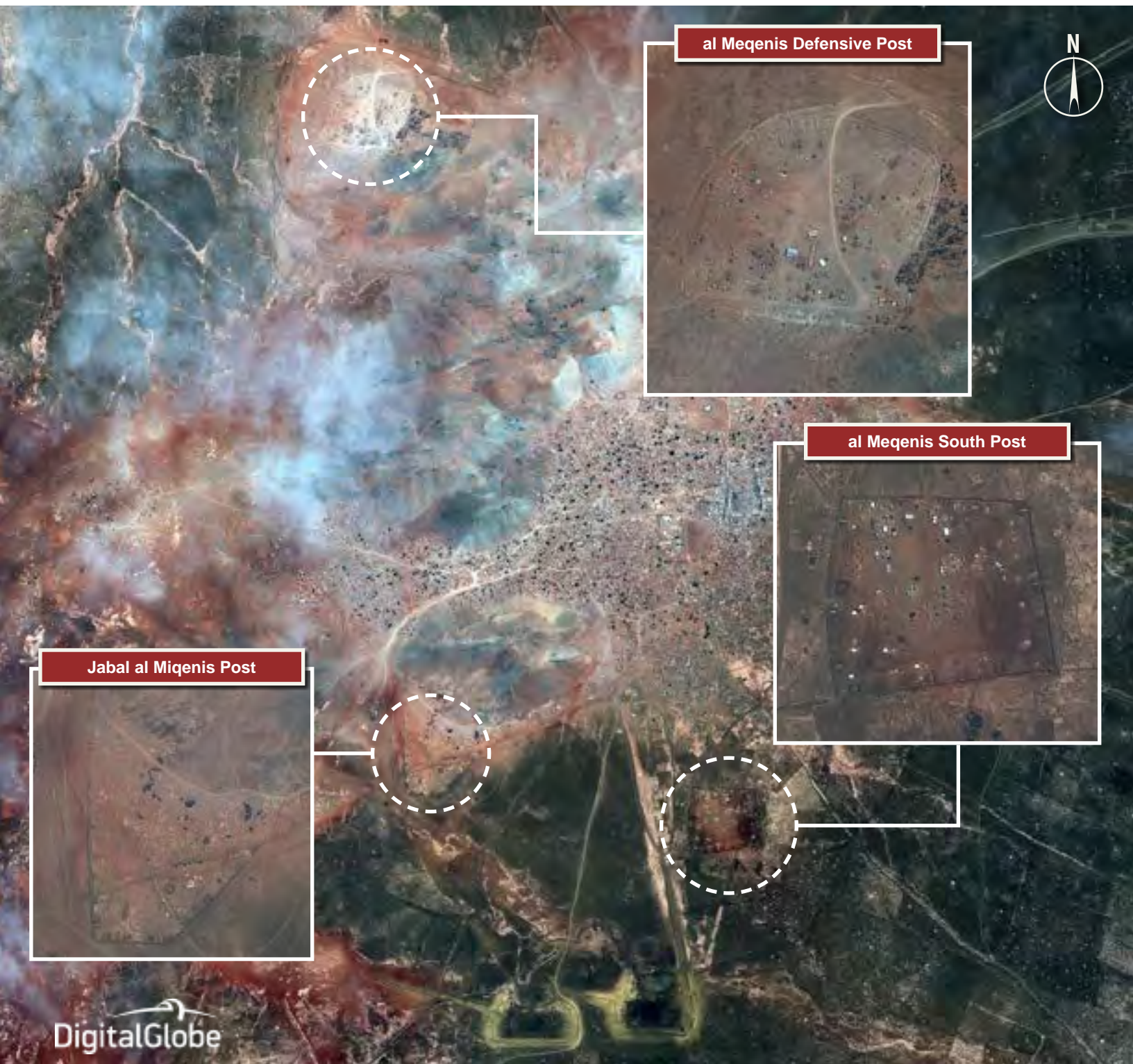
Jabal Al Miqenis is a triangular-shaped earthen-bermed defensive position with the north side abutting Jabal al Miqenis, roughly 1 kilometer west of the border. This SAF defensive post was first observed under construction in May 2012, and consisted of 12 vehicle revetments built into the earthen-berm with three artillery revetments and ten tents to support and shelter a squad-sized unit. When observed on May 29, 2013, two technicals were parked in the revetments and the squad tents remained.

Al Miqenis Post South is a probable Popular Defence Forces post, present since at least 2011 and within 1 kilometer of the border. The Popular Defence Force or PDF militias are aligned with the government of Sudan. Improvements to the post were noted in May 2012 when the perimeter was expanded, probably to accommodate the three tanks and two howitzers that arrived. As of May 29, 2013, the tanks and artillery are gone but seven probable technicals are deployed in revetments positioned in the earthen-bermed perimeter.

The persistence of two SAF installations and one PDF post within the buffer zone in the al Miqenis area represents a clear violation of the government of Sudan's obligations under the terms of the demilitarization agreement.



FIGURE 8: SAF/PDF Defensive Positions



al Miqenis, South Kordofan, Sudan  
DigitalGlobe Natural Color Image, May 26, 2013



FIGURE 9: SPLA Defensive Position



Es Sumeih, 14 Mile Area  
DigitalGlobe Natural Color Image, May 29, 2013



## Es Sumeih

South Sudan maintains three occupied defensive positions in the area of Es Sumeih, all within 7 kilometers of the Bahr al Arab, (Kiir River) which serves as the border in the hotly contested 14-mile area.(see Figure 9).

The largest of the three positions is at the railroad bridge crossing the Bahr al Arab. As early as January 2013, this position had more than 150 tents and huts scattered inside a perimeter of foxholes. The defensive position remained occupied on May 29, 2013, and had grown to approximately 270 tents with one tank observed parked under a tree. Tank tracks suggest that at least one additional tank was in the area. Less than 2.5 kilometers south of the bridge position, another defensive post was observed in the January 2013 imagery. This post had 45 tents and huts inside a rectangular perimeter that flanked both sides of the railroad tracks. No heavy weaponry is observed in the May 29, 2013, imagery. The third position is at the Es Sumeih railroad station about 6.5 kilometers from the railroad bridge over the Bahr al Arab. This position also flanks both sides of the railroad track and consisted of over 150 tents and huts in January 2013. By May 29, 2013, the number of tents and huts had grown to 170, with vehicle tracks in the installation suggesting a tank or other tracked vehicle might be positioned under the trees.

## Vulu/River Siri

Three SPLA encampments, located near the juncture of the Rikki and Siri Rivers, were constructed, sometime between December 2009 and November 2011 within 1 kilometer of the border with Sudan. (see Figure 10) The northernmost of the three SPLA positions (tank encampment) contained more than 350 tents in June 2012. Tracked vehicle scaring was observed for the first time in 2012 and was more pronounced in June 1, 2013 imagery. It is possible that several tanks are deployed here but hidden under the trees. In June 2012, the second area (SPLA encampment) was just becoming active and had 90 tents just inside a perimeter of foxholes. By June 1, 2013, more than 200 tents are present within the foxhole and hand-dug trench perimeter. The additional tents probably came from an abandoned position located 800 meters west of this camp. The third camp in the area (Border Camp), had a 150-meter diameter foxhole and zig-zag trench perimeter that provided protection for over 80 tents and tukuls in June 2012. By June 1, 2013, the border camp's inner perimeter was replaced with a similar outer perimeter, approximately 250 meters in diameter that now provides protection to over 200 tents and tukuls. No dismantlement activity is observed to suggest that South Sudan is attempting to relocate this unit, or the other units in the immediate area, to locations outside the SBDZ.

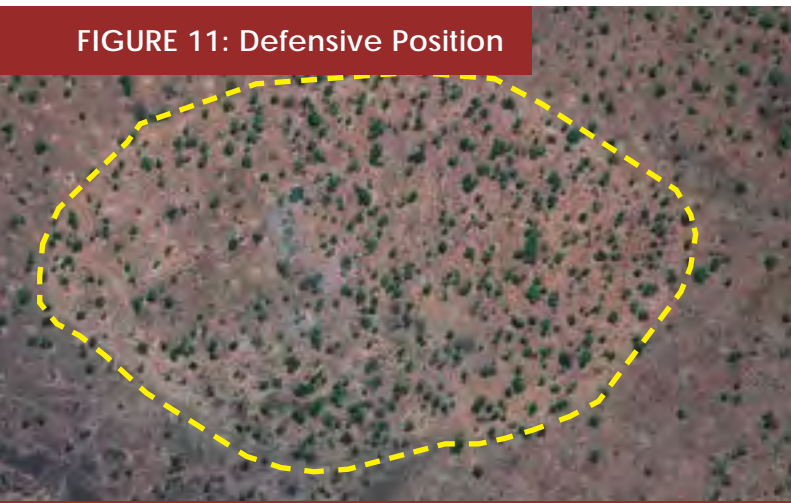
FIGURE 10: SPLA Defensive Positions



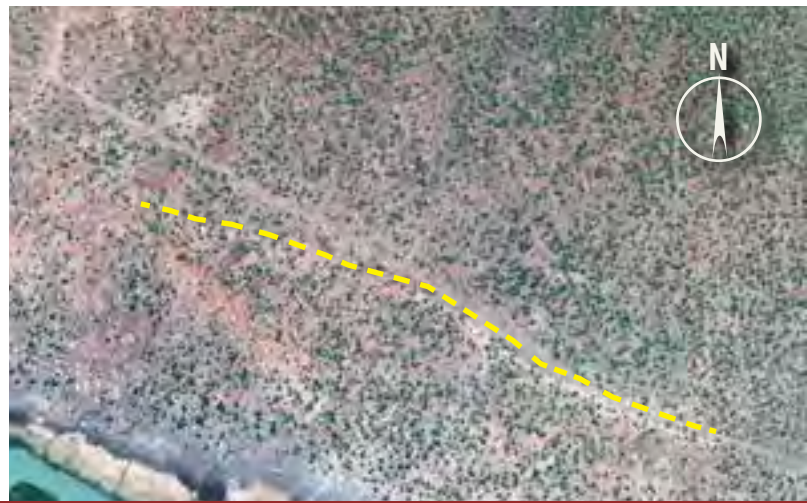
Vulu/River Siri, Western Bahr El Ghazal, South Sudan  
DigitalGlobe Natural Color Image, June 1, 2013



FIGURE 11: Defensive Position



Border Garrison, Jau, South Kordofan, Sudan  
DigitalGlobe Natural Color Image,  
May 26, 2012



Defensive Line, Jau, South Kordofan, Sudan  
DigitalGlobe Natural Color Image,  
May 26, 2012



Camp 1, al Abyad, Unity, South Sudan  
DigitalGlobe Natural Color Image,  
May 26, 2012



Camp 2, al Abyad, Unity, South Sudan  
DigitalGlobe Natural Color Image,  
May 26, 2012

### Jau & al Abyad Lake

The area around Al Abyad Lake is also known as Jau (Jaw) and Qardud (Qurdud) straddles the Sudan/South Sudan border between South Kordofan and Unity states. There has been a likely SPLA presence in the area since at least November 2012. Four substantial military defensive positions are maintained in the Jau area; the first, Jau Border Garrison, is a large encampment surrounded by a circular trench and berm with over 400 tents and tukuls inside the berm. The number of tents could provide shelter and support for an infantry battalion but that number may include tents for family members of fighters. A line of foxholes approximately 2.8 kilometers long, on the north side of Jau village, is the second military position and has been occupied since November 2011. The number of tents deployed behind this defensive line varied over the years but tents are still present over much of the distance in May 27, 2013, imagery. Al Abyad Camp 1 houses more than 200 tents and structures, but no heavy weapons or artillery are observed in May 2013. The final defensive position, Qardud Camp 2 has more than 250 tents and huts within a large foxhole-lined perimeter on May 29, 2013. Armored vehicle tracks throughout the area suggest that 2-3 tanks may be present, but foliage precludes an accurate assessment.

FIGURE 12: Defensive Position



Kilo-4, Upper Nile, South Sudan  
DigitalGlobe Natural Color Image  
May 23, 2013

#### Kilo 4

A small squad-size SPLA unit was first observed on the northern side of Kilo-4 village in Upper Nile State South Sudan as early as December 2012. (see Figure 12) Thirty tents were positioned in a 120-meter diameter circular pattern around two buildings. No heavy weapons are observed in the encampment on May 23, 2013.

#### Raqabat

Raqabat Umm Beiro Bridge SPLA Defensive Position is directly south of the Bahr al-Arab (Kiir River) and has been here since at least March 2011. Since January 2013, over 150 tents and huts were observed behind rectangular shaped perimeter consisting of an earthen-berm, trench and foxholes. The defensive position was split nearly in half by a main road. Tracked vehicle scars were noted and suggest that tanks were present at one time. Imagery from May 29, 2013 shows little change to the position and tanks could still be present under trees in the installation. (Figure 13)



FIGURE 13: SPLA Defensive Position



Raqabat, 14 Mile Area  
DigitalGlobe Natural Color Image, May 8, 2013



FIGURE 14: SPLA Garrison



Aleel, Unity, South Sudan  
DigitalGlobe Natural Color Image, May 26, 2013

### Aleel

This probable SPLA defensive position, present since at least February 2013, is 8 kilometers west of the border and occupied with more than 170 tents/tukuls. On May 27, 2013 the number of tents and tukuls remained consistent with previous observations.



## Conclusion

Although UNISFA previously conducted border-verification missions to Wunthou, Tishwin, Radom and al Kwek and Kiir Adem, it was unable to detect violations in any of these locations. The peacekeeping mission subsequently informed the Joint Political and Security Mechanism that it could not make definitive findings regarding the parties' compliance until it gained additional troops necessary to conduct ground verification in the demilitarized zone.<sup>9</sup> In the absence of adequate force protection and resources to staff ground-patrol missions, the joint border-verification mechanism and UNISFA rely on sporadic overflights to verify compliance. In his May 17, 2013, report to the Security Council, the secretary general acknowledged this capacity limitation and stressed that:

*the presence of armed groups inside the Safe Demilitarized Border Zone remains a considerable security concern for the Joint Border Verification and Monitoring Mechanism. I would therefore request the Council to accept my recommendation to grant the increase in the authorized strength of the UNISFA military component by 1,126 personnel.*<sup>10</sup>

On May 29, 2013, the Security Council passed a resolution renewing the UNISFA mission's mandate and adopting to the Secretary General's March 2013 request for augmented troop strength, so the peacekeeping mission's maximum size has now increased from 4,200 to 5,326 troops.<sup>11</sup> Once deployed, these new troops are expected to support the two Sudans in monitoring the demilitarized border zone. The U.N. has already authorized 227 extra troops to be deployed within the air-aviation unit as military observers, staff officers, and as a part of the Joint Border Verification and Monitoring Mechanism.<sup>12</sup>

In the report "Broken Agreement," SSP documented violations at two hotspots: Heglig and Kiir Adem. This latest report shows more evidence of both countries' noncompliance at Aleel, Radom, Vulu, Es Sumeih, Raqabat, Jau, al Miqenis, Wunthou, Keri Kera, al Kwek and Kilo 4. We expect that more violations have likely gone undetected and unverified due to the slow deployment of the Joint Border Verification and Monitoring Mechanism and the UNISFA mission's current lack of resources and force-protection capacity for ground missions. Acknowledging the limitations of aerial surveillance, SSP will continue to monitor both Sudan and South Sudan's armed forces and their compliance with obligations to create a demilitarized buffer zone. Notwithstanding recent rhetoric suggesting the government of Sudan's unilateral cancellation of all cooperation agreements between the two Sudans, a fully functioning demilitarized zone remains a critical element of maintaining the fragile peace between both countries.

## Endnotes

- 1 The Government of Sudan certified its compliance with the withdrawal obligations on March 26, 2013, and South Sudan certified its compliance on April 11, 2013. Enclosure to Decision Adopted by the JPSM Extraordinary Meeting, "Report by the Head of Mission UNISFA to the Joint Political and Security Mechanism (JPSM) during its Extraordinary Meeting in Addis Ababa, Ethiopia on 22 April 2013," p. 6 (on file with author).
- 2 Satellite Sentinel Project, "Broken Agreement: Violations in the Demilitarized Border Zone by Sudan and South Sudan" (2013), available at [http://www.satsentinel.org/sites/default/files/Broken\\_Agreement.pdf](http://www.satsentinel.org/sites/default/files/Broken_Agreement.pdf).
- 3 "Implementation Modalities for Security Arrangements agreed on 27th September 2012 between the Republic of the Sudan and the Republic of South Sudan" (2013), available at [http://www.rssnegotiationteam.org/uploads/1/2/8/8/12889608/sudansouth\\_sudan\\_implementation\\_modalities\\_for\\_security\\_080313.pdf](http://www.rssnegotiationteam.org/uploads/1/2/8/8/12889608/sudansouth_sudan_implementation_modalities_for_security_080313.pdf); "Adoption of Implementation Matrix by Sudan and South Sudan" (2013), available at [http://www.rssnegotiationteam.org/uploads/1/2/8/8/12889608/implementation\\_matrix\\_on\\_cooperation\\_agreements\\_120313.pdf](http://www.rssnegotiationteam.org/uploads/1/2/8/8/12889608/implementation_matrix_on_cooperation_agreements_120313.pdf).
- 4 Ibid.
- 5 "Agreement on Security Arrangements between the Republic of the Sudan and the Republic of South Sudan" (2012), available at <http://www.rssnegotiationteam.org/security-arrangements.html>.
- 6 Ibid.
- 7 Enclosure to Decision Adopted by the JPSM Extraordinary Meeting, "Report by the Head of Mission UNISFA to the Joint Political and Security Mechanism (JPSM) during its Extraordinary Meeting in Addis Ababa, Ethiopia on 22 April 2013," p. 6 (on file with author).
- 8 Ibid.
- 9 U.N. Security Council, "Report of the Secretary-General on the situation in Abyei" (2013), available at [http://www.un.org/ga/search/view\\_doc.asp?symbol=S/2013/294&Lang=E](http://www.un.org/ga/search/view_doc.asp?symbol=S/2013/294&Lang=E).
- 10 Ibid.
- 11 United Nations Security Council Resolution 2104 (2013), May 29, 2013 available at <http://www.un.org/News/Press/docs/2013/sc11017.doc.htm>
- 12 Ibid.



Satellite Sentinel Project  
conducts regular, intensive  
monitoring of Sudan to  
assess the current human  
security situation and  
identify potential threats to  
civilians.