



# Satellite Sentinel Project

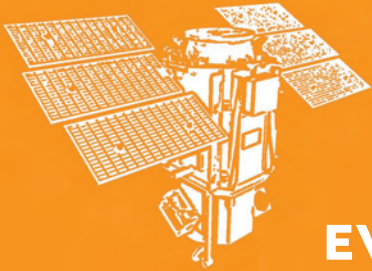
ALERT: HUMAN SECURITY CRISIS

**ABYEI INVASION:  
EVIDENCE OF SAF INCURSION INSIDE ABYEI**

**25 MAY 2011**







# Satellite Sentinel Project

## ABYEI INVASION: EVIDENCE OF SAF INCURSION INSIDE ABYEI

**ALERT: HUMAN SECURITY CRISIS**

PREPARED BY



Harvard  
Humanitarian  
Initiative

### 25 MAY 2011

Satellite Sentinel Project (SSP) has confirmed through the analysis of DigitalGlobe imagery that the southern-aligned base at Todach has been recently razed; evidence consistent with an attack on that location by armored vehicles is visible. The southern-aligned base at Tajalei, which was allegedly attacked on 21 May, does not appear to be visibly damaged. The base may have been abandoned by Southern units, however. Additionally, imagery shows fires burning in the town of Dungop and another point near Abyei town, consistent with reports that buildings are being burned by northern-aligned forces in the Abyei region.



**24 MAY 2011 | A FIRE BURNS HOT OUTSIDE DUNGOP,  
5 MILES OUTSIDE ABYEI TOWN.**

Nanchang Q-5 ground attack aircraft and Antonov transports, which the Sudan Armed Forces (SAF) use as bombers, and a Yak-40 transport plane are visible at the SAF El Obeid airbase. Each plane is easily within striking distance of Abyei town and can all reach targets in Abyei region in approximately an hour or less. The presence of these attack capable planes in close proximity to Abyei is consistent with reports of SAF bombing attacks in Abyei within the past five days.

At one base near Goli, which SSP had previously identified as an alleged armed Misseriya encampment, the tents that had previously been visible there are no longer present. This image is consistent with reports that armed Misseriya have voluntarily moved from their recent positions to points south, including Abyei town. Satellite Sentinel Project has seen over 40 new structures erected at SAF base Heglig as of 13 May and new vehicles, including three consistent with armored units, are clearly visible. Four main battle tanks consistent with T-55s are visible at Kharassana as of 20 May.

### BACKGROUND

With less than two months remaining before South Sudan becomes an independent state, North and South Sudan are on the brink of renewed civil war following the Sudan Armed Forces' (SAF) occupation of Abyei town and surrounding areas in the contested Abyei region of Sudan. On 19 May, soldiers from the Southern Sudanese police or military forces are accused by the North of having ambushed a convoy of SAF elements of Joint Integrated Units (JIUs) and their UNMIS escorts within the Abyei Administrative Area.

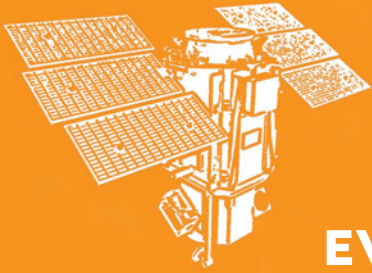
In response, the SAF allegedly bombed several villages in the Abyei region that were reportedly controlled by southern-aligned forces, as well as the main bridge providing access to areas south of Abyei. On 21 May, the SAF seized control of Abyei town. As of 24 May, the burned and looted town of Abyei is still under SAF control, despite pressure from the international community for northern troops to withdraw from the area. The escalation of violence over the past five days has displaced at least 25,000 to 30,000 civilians from Abyei town and the surrounding areas, according to the UN.

(continued)

### ABOUT THE PROJECT

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

Analysis prepared by Harvard Humanitarian Initiative and UNITAR/ UNOSAT. Imagery and additional analysis provided by DigitalGlobe.



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(continued)

Princeton Lyman, US envoy for Sudan, has condemned the SAF invasion of the Abyei region as “an extremely disproportionate response by the Government of Sudan.”

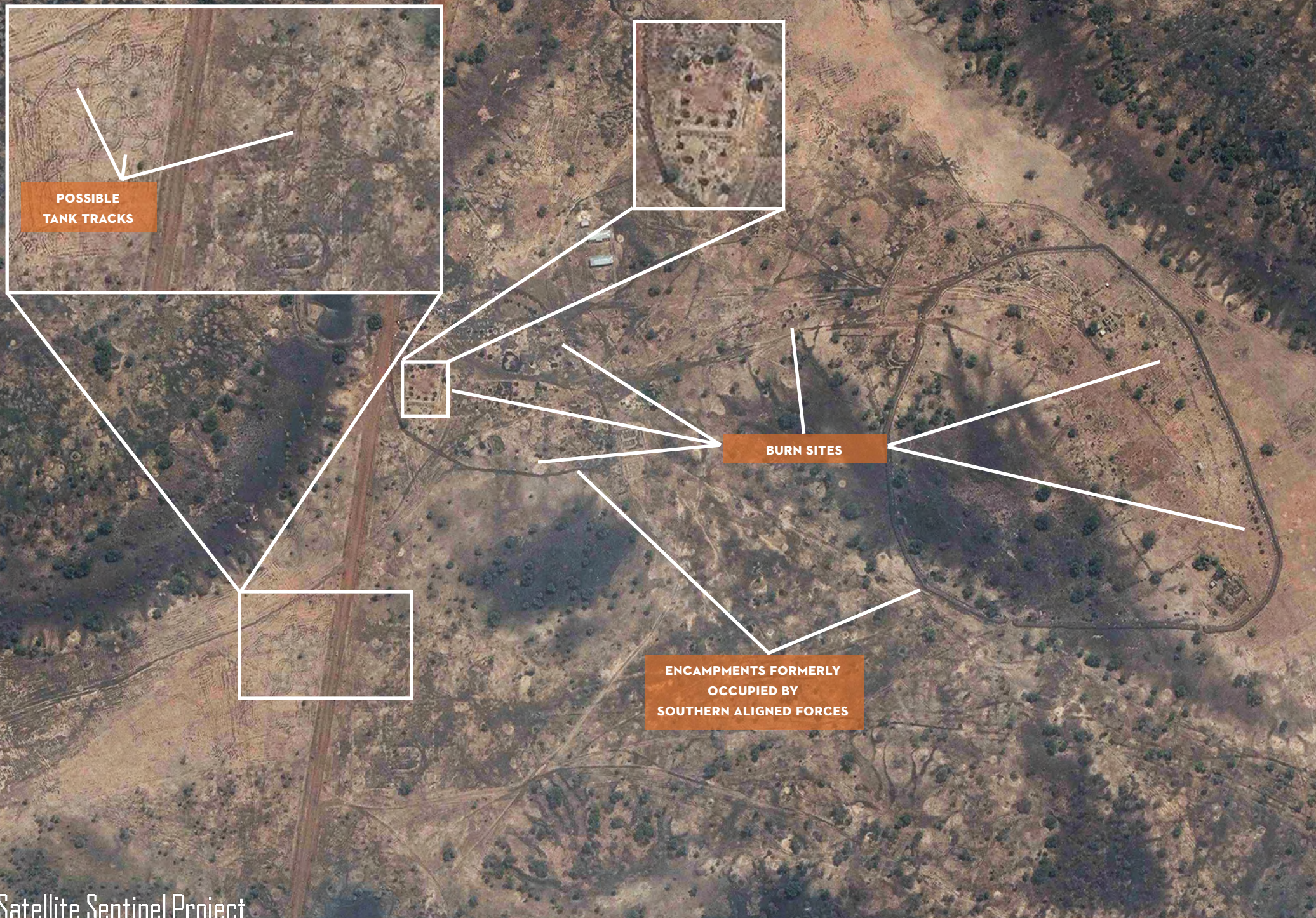
### FINDINGS

- The Southern-aligned base at Todach has been completely razed since the last image for that location on 3 May. Numerous indications of heavy vehicle tracks, likely from armored vehicles, are present in the imagery. Armored vehicles are visible in the vicinity. In addition, there are possible craters and fighting positions present throughout the remains of the fortified base.
- Six fixed-wing aircraft are visible at the SAF airbase at El Obeid, approximately 440 kilometers from Abyei town. The planes include two consistent with Nanchang Q-5 ground attack aircraft, two consistent with Antonov An-24/26 Coke/Curls (one of which appears decommissioned), and an Antonov An-12 Cub.
- Except for one structure in the center of the suspected Misseriya militia encampment at Goli, all structures previously observed at the location are gone as of 24 May. Light vehicles seen at that site are gone as well. There is no damage visible.
- As of 24 May, the Southern-aligned Tajalei encampment shows no visible signs of damage, burned structures, or evidence consistent with recent combat having taken place there. Vehicles are not visible at the base, nor is there apparent evidence of either new or missing structures.
- Imagery shows that an additional 40 structures were erected at the Heglig encampment between 24 April and 13 May. Additionally, three vehicles consistent with armored vehicles are present, as well as an additional six light and heavy vehicles.
- The image of the SAF base at Kharassana shows the presence of four armored vehicles consistent with T-55 main battle tanks. Four objects along the perimeter wall of the facility were removed sometime between 14 March and 20 May.

### CONCLUSIONS

- The image of Todach confirms reports that the Southern-aligned base was attacked by SAF forces on 20/21 May. The presence of possible tank tracks on the ground and armored vehicles in the vicinity suggests that an attack by tanks or other armored units occurred. Possible craters – potentially a result of tank, aerial, and/or artillery bombardment – appear visible.
- The presence of Antonov transport planes and Nanchang Q-5 aircraft at El Obeid, 440 kilometers from Abyei town, is consistent with reports that the SAF aerially bombed targets in Abyei, reportedly beginning on 20 May. The Nanchang Q-5s are able to reach Abyei town in approximately 20 minutes. The Antonov transports can fly to Abyei town in under an hour.
- The absence of all vehicles and all structures except one from the suspected Misseriya militia camp at Goli is consistent with reports that armed Misseriya have voluntarily moved from their recent positions into Abyei town and the vicinity.
- The Southern-aligned base at Tajalei, which SAF allegedly attacked on 21 May, appears to have likely been abandoned due to the fact that there is no damage visible at that location, but Southern-aligned forces reportedly no longer control that area.
- The rapid build-up of SAF forces at the suspected SAF base at Heglig on May 13, including armored vehicles and both light and heavy trucks, suggests apparent preparations for imminent operations approximately a week before the SAF invasion of Abyei.
- SSP monitoring of the Kharassana site suggests that the four objects previously visible along the base’s perimeter were armored vehicles concealed at that location. The four tanks consistent with T-55 armored vehicles may or may not be the tanks allegedly concealed at that position. The Kharassana image is evidence of potential SAF concealment of vehicles in South Kordofan prior to the 21 May incursion into Abyei.





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3 MAY

LIGHT VEHICLE

POSSIBLE  
ARTILLERY POSITION

APPROXIMATELY  
27 STRUCTURES

24 MAY

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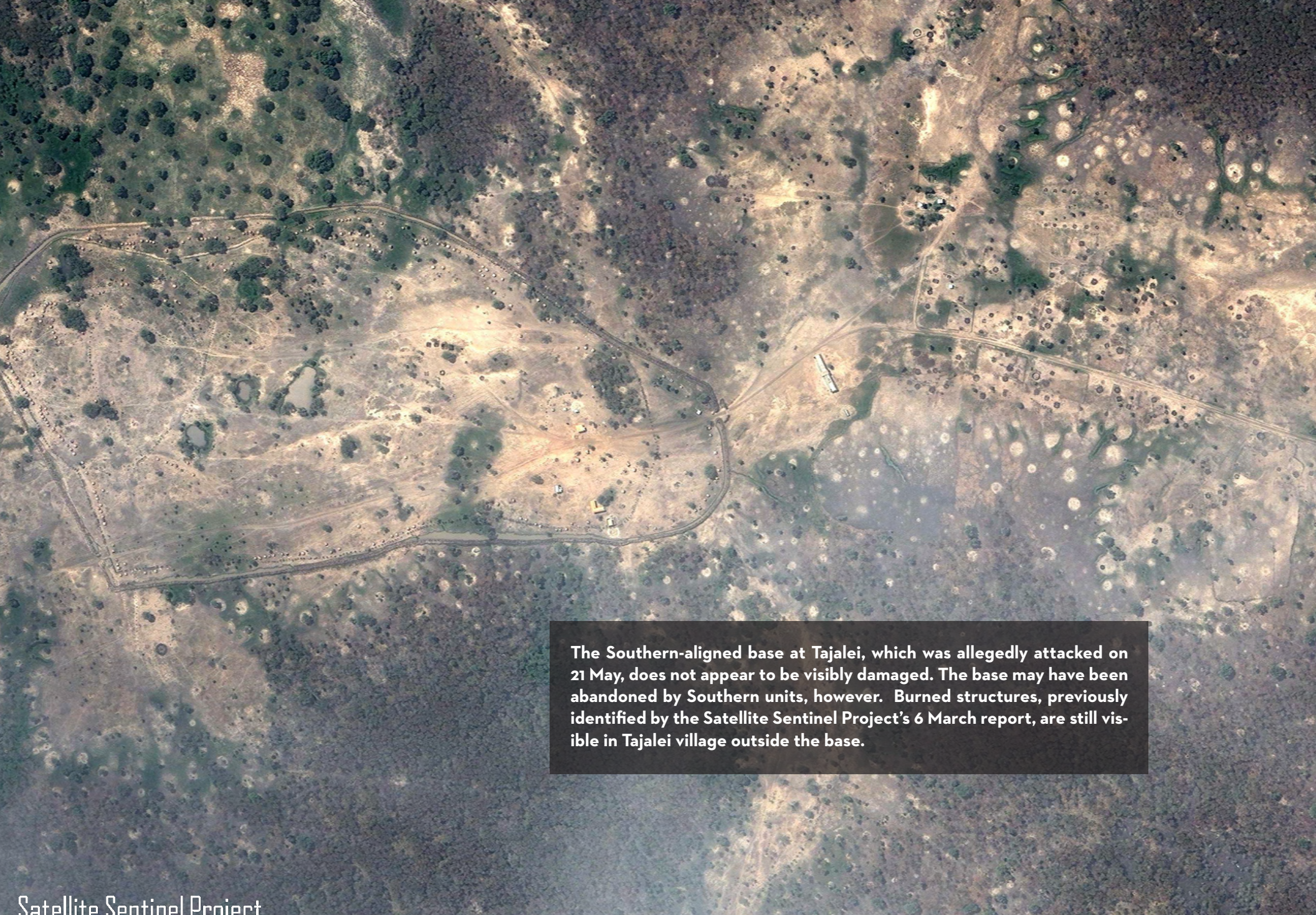
DIGITALGLOBE



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3 MAY TO 24 MAY 2011 | FIG 3  
APPARENT VOLUNTARY PULL-OUT AT SUSPECTED MISSERIYA MILITIA CAMP | GOLI

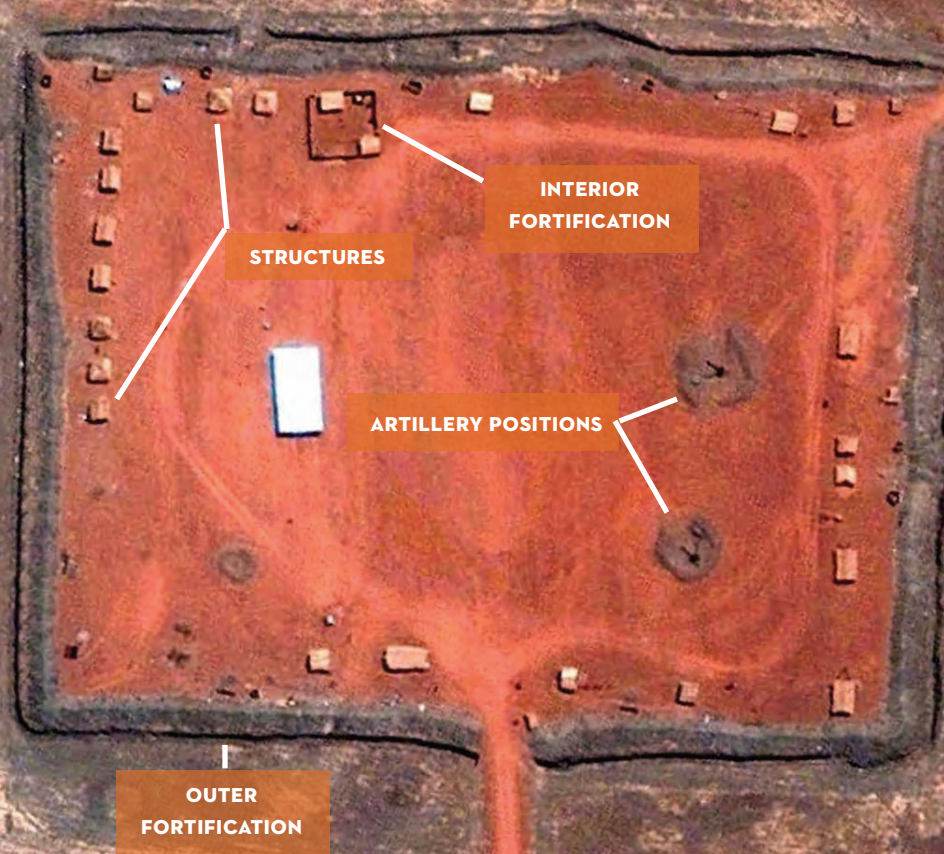




The Southern-aligned base at Tajalei, which was allegedly attacked on 21 May, does not appear to be visibly damaged. The base may have been abandoned by Southern units, however. Burned structures, previously identified by the Satellite Sentinel Project's 6 March report, are still visible in Tajalei village outside the base.



24 APRIL

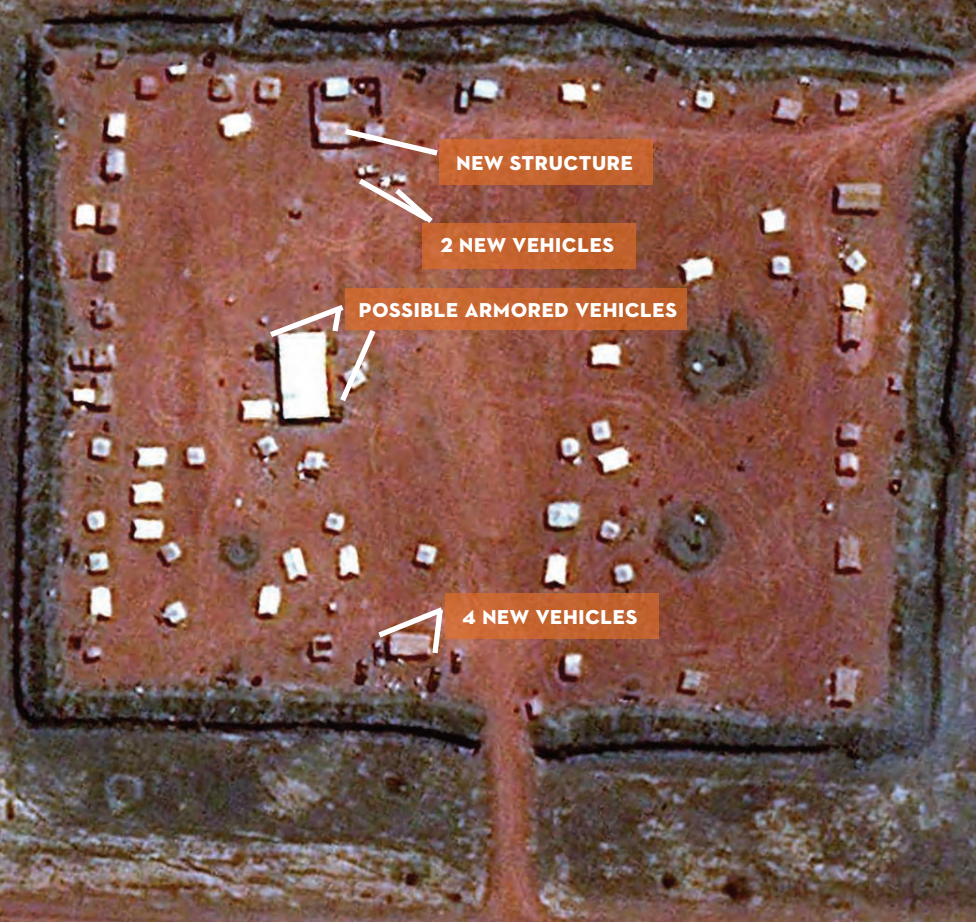


13 MAY

Since April 24, the Heglig encampment's capacity increased significantly:

- At least 40 new structures
- Three (3) possible armored vehicles
- Six (6) new vehicles

Note: The Heglig encampment falls outside the Abyei Administrative Area as defined by the 2009 PCA ruling.



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24 APRIL TO 13 MAY 2011 | FIG 5  
SAF BASE | HEGGLIG



14 MARCH

20 MAY

POSITION OF 4 TANKS  
CONSISTENT WITH T-55s,  
AS PREVIOUSLY IDENTIFIED BY SSP

ARTILLERY

LIGHT VEHICLES

ARTILLERY

4 TANKS  
CONSISTENT WITH  
T-55s

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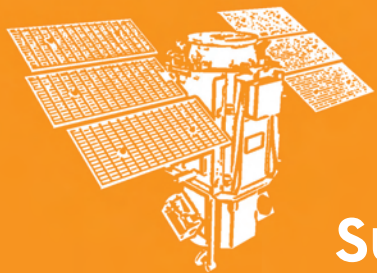
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14 MARCH TO 20 MAY 2011 | FIG 6  
SAF TANKS VISIBLE AT KHARASSANA PRIOR TO INVASION OF ABYEI | SOUTH KORDOFAN





# Satellite Sentinel Project

## FACT SHEET: SUDAN ARMED FORCES' INVASION OF ABYEI

### OVERVIEW | 24 MAY 2011

Since January 2011, Satellite Sentinel Project (SSP) has monitored the rapid, robust and concerted offensive build-up of Sudan Armed Forces (SAF) and Popular Defense Force (PDF) militias in and around the Abyei region. The SAF invasion of Abyei on 21 May 2011, with the exception of fixed-wing fighter aircraft, appears to have been comprised primarily of the forces SSP has been tracking since it was launched on 29 December 2010.

The ongoing attack is wholly consistent with the strengthening of SAF capabilities reported by SSP over the past four months in the area. Sudan Armed Forces troop strength, infrastructure improvements, and positioning of forces along main roads under 200 kilometers from Abyei are indications that the invasion of Abyei was premeditated and well-planned.

Observations from previous SSP reporting relevant to the current SAF combat action in Abyei include the following:

### TROOPS AND TRANSPORT VEHICLES

Reports by Southern Sudanese officials that an allegedly division-sized unit of 5,000 SAF soldiers attacked Abyei over the weekend is consistent with the approximately 10 large, military encampments in SAF-controlled areas of South Kordofan that SSP has identified since January. These bases range in size, but could hold at least 100 to 200 troops each. In some cases, they could be capable of holding approximately 500 troops or more. In total, SSP has seen a deployment around Abyei in recent months consistent with the alleged force strength purportedly inside Abyei town and the surrounding area at present.

Additionally, light and heavy vehicles consistent with escort and troop transport vehicles have been seen over the past four months at these locations. In some locations, SSP has identified vehicles consistent with armored personnel carriers (APCs).

### PRESENCE OF PDF MILITIAS IN ABYEI

Beginning in March 2011, SSP identified two encampments inside the Abyei region consistent with reports that northern-aligned, armed Misseriya militia groups had set up bases inside Abyei at Goli and Bongo (also known as Alal), among other locations. Local officials have accused personnel at those camps of participating in the razing earlier

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### SAF OUTPOST NEAR KHARASSANA | 20 MAY 2011

Four tanks consistent with T-55s, first identified in a 4 March SSP report, were seen uncovered and in new positions on 20 May 2011.

this year of villages inside Abyei, including Maker Abior, Todach, and Tajalei. News reports from Abyei on 23 May allege that Misseriya militias are looting and razing buildings in Abyei town and the vicinity.

### TANKS

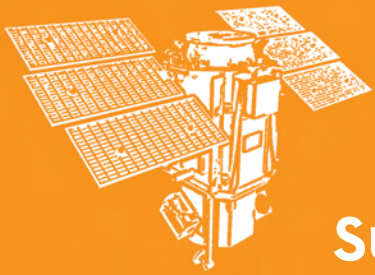
The approximately 13 T-55 main battle tanks SSP has seen forward deployed – and in some cases, concealed within driving range of Abyei in recent months – are consistent with the reported 15 T-55 battle tanks allegedly present now in Abyei town.

(continued)

### ABOUT THE PROJECT

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# Satellite Sentinel Project

## FACT SHEET: SUDAN ARMED FORCES' INVASION OF ABYEI

### **ARTILLERY**

The presence of mobile artillery with corresponding vehicles capable of transporting artillery in at least three locations within 100 kilometers of Abyei over the past four months is consistent with reports of SAF shelling inside the Abyei region.

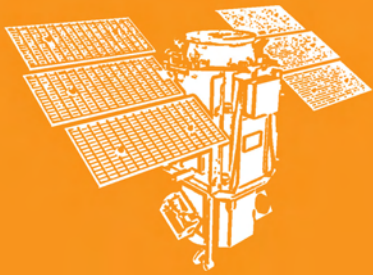
### **ROAD IMPROVEMENTS**

Rapid construction of heavy, all-weather roads to the north and northeast of Abyei, which SSP reported in recent weeks, likely facilitated the SAF's incursion into Abyei. These roads more easily connect major SAF bases, including those where tanks have been seen, to the routes leading to Abyei.

### **HELICOPTER BASING AND REFUELING**

Satellite Sentinel Project reported in March the construction of an on-site refueling facility at the Muglad airstrip, part of the SAF 15th Division headquarters, approximately 180 kilometers from Abyei town. Subsequently, at least two Mi-24 Hind attack helicopters were observed at that location. The Project has reported Mi-8 helicopters at this location as well. These developments are consistent with reports received in the past 36 hours of SAF helicopters circling Abyei town.





# Satellite Sentinel Project

## ABOUT THE PROJECT AND THE PARTNERS

### THE WORLD IS WATCHING BECAUSE YOU ARE WATCHING.

The Satellite Sentinel Project – conceived by George Clooney – combines satellite imagery analysis and field reports with Google's Map Maker technology to deter the resumption of war between North and South Sudan. The project provides an early warning system to deter mass atrocities by focusing world attention and generating rapid responses on human rights and human security concerns.

This project is the result of an unprecedented collaboration between Not On Our Watch, the Enough Project, Google, the United Nations UNITAR Operational Satellite Applications Programme (UNOSAT), DigitalGlobe, the Harvard Humanitarian Initiative, and Trellon, LLC.

The project works like this: Commercial satellites passing over the border of northern and southern Sudan are able to capture possible threats to civilians, observe the movement of displaced people, detect bombed and razed villages, or note other evidence of pending mass violence.

UNITAR/UNOSAT leads the collection and analysis of the images and collaborates with Google and Trellon to design the web platform for the public to easily access the images and reports. Harvard Humanitarian Initiative provides system-wide research and leads the collection, human rights analysis, and corroboration of on-the-ground reports that contextualizes the satellite imagery. The Enough Project contributes field reports, provides policy analysis, and, together with Not On Our Watch, and our Sudan Now partners, puts pressure on policymakers by urging the public to act. DigitalGlobe provides satellite imagery and additional analysis.

The Satellite Sentinel Project marks the first sustained, public effort to systematically monitor and report on potential hotspots and threats to security along a border, in near real-time (within 24-36 hours), with the aim of heading off humanitarian disaster and human rights crimes before they occur.

Not On Our Watch – co-founded by Don Cheadle, George Clooney, Matt Damon, Brad Pitt, David Pressman, and Jerry Weintraub – has provided seed money to launch the project. To support the Satellite Sentinel Project, donate at [www.satsentinel.org](http://www.satsentinel.org).

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