

Detailed Boundary Recovery Report, Sudan 1956 North-South Line, West to East

On the most detailed relevant maps, the 1930's Sudan Survey 1:250,000 series (later reprinted by both the UK GSGS (Geographic Services, General Staff) and US DMA (Defense Mapping Agency) as series Y501), a straight line is clearly shown to begin the 1956 Sudan North-Line at the 3245 ft. above sea level Jebel Mishmira summit which is the turning point between the two southernmost straight line segments on the Central African Republic-Sudan boundary. Only the first 2.5 km of this line is hilly. From here, the line heads just south of east for 39 km to Jebel Cheili, a small, isolated, distinct peak next to the Raqaba Umbelasha (the upper portion of the major White Nile tributary, the Bahr al' Arab.) The 0.6 km connecting the peak to the watercourse is a straight line trending ESE on the map.

The Bahr al' Arab boundary section continues eastward, downstream for about 270 km (measured along the valley axis; the distance measured along each bend could easily be double that amount.)

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A 22 km meridian line runs south from the Bahr al' Arab. Then, for the next 260 km SE and then eastward, the line roughly parallels the Bahr al' Arab 20 to 30 km SW and then south of that river's southernmost channel. For this section, only the coordinates gleaned from the Sudan Survey map geographic grid provide any guidance as to location and thus were used exclusively; there are no features on the map or in the landscape of any relevance in this arid eastern Sahel region.

Reaching the boundary between South Darfur and Kordofan Provinces on the north, the line now borders the Abyei region as defined in 2009, turning SE for 33 km, then east for 78 km on the 9-5-50N parallel as shown on the Sudan Survey map grid. The drainage depicted on the Sudan Survey map over the eastern two-thirds of this section also matches on the ground with the line at that parallel. The parallel ends at the Khawr Amadgora, a tributary of the Lol River which is a Bahr al' Arab (Kir River) tributary.

The next segment is a straight line six km NNW to a Bahr al' Arab bend that is distinct on the ground and on the map. From there, the line runs northeast for eight km to a point about a km WNW of the western end of Lake Kerrita (distinct on the ground and the map.) From here, the line arcs north, then NE, for 6.5 km, remaining on the map and the ground just NW of the Raqaba Abu Geddiya (Amom) watercourse.

The line trends NE as two straight lines for 28 km to 29-00E, the 2009-defined eastern edge of the Abyei region, then a further five km to a bend of the Raqaba ez ez Zarga watercourse that is distinct on the ground and the map about a km northwest of Tebusaya (Akot) village as shown on the Soviet 1:200,000 and Sudan Survey maps. Over the last three km, the 1956 line now arcs across the major Raqaba ez Zarqa (Ngol) watercourse twice; however, in 1956 this channel either did not exist at all or was just a minor channel.

The Raqaba ez Zarqa forms the boundary within a valley trending northeast for 11 km; the Sudan Survey map employs the common cartographic convention of alternating the boundary line symbol from one side of the watercourse line to the other. The line leaves this river eastward near 29-7 E on the 9-45N parallel, a parallel quite clearly indicated by the geographic grid on the Sudan Survey map. The current Raqaba ez Zarqa channel is south of 9-45N for the 10 km west of 29-7E but is shown entirely north of it on the map, and the first 13 km of the channel east of 29-7E is now 75% south of 9-45N but

is shown entirely north of it on the map. To remedy all of this, one could place the boundary line three km further south (than the map's specified latitude) to 9-43-20N which would place all of the current channel on the "correct" side of the 1956 line as shown in the 1930's. However, this seems a poor choice, as there is a great likelihood, based on remnants visible on imagery, that the main channel has shifted since then; and the boundary placement exactly on 9-45N is quite clear on the map grid.

After 46 km, the line leaves the parallel and turns north on the 29-32-15E meridian for 37 km, then NE for 50 km in a single straight line. The line location in this largely featureless area relies strictly on the Sudan Survey geographic grid. The two turning points on the end of the parallel that is followed six km across Lake Abyad (Jau) to 30-00E are clear on the map. From there, the line trends SE as two straight lines for 112 km to the Khawr Turor, 24 km north of the White Nile at a very distinct point on the Sudan Survey maps where the watercourse is crossed by a telegraph line and major road, the latter clear on imagery, still in its 1930's position.

The line follows the Khawr Turor 4.5 km NNE in reality to the 9-45N parallel again. Some of the worst surveying on the Sudan Survey map here portrays the Khawr Turor running ENE instead, four km from its actual route, but even so, the map makes it clear that the line follows the Khawr Turor, the only generally north-south-trending watercourse for a great distance in any direction.

After following 9-45N for 37 km to the east, the line curves to the northeast via several long straight line segments across terrain devoid of relevant features and thus reliant on the map's geographic grid, and after 160 km crosses the distinct Khawr Elagad 13 km NW of the White Nile. The line continues 17 km NE to the Ugeiz well (not located) on a bend of the Khawr el Ayuna, with the map grid and depiction of the watercourse providing a reliable location. The Sudan Survey maps indicate some turning points, including those at both ends of the meridian in the next section, as slightly curved. However, these could be and were generally interpreted as simply a cartographic shortcut or generalization.

From the Ugeiz well, the line runs to the NW for 17km as one straight, then north on a meridian for 58km (both turning points line based on the map grid alone in largely featureless terrain), then NW in a straight line for 42 km to the Jebel Megeinis peak at the eastern end of the Kordofan Province and historically the beginning of the Blue Nile Province (now White Nile Province.)

The last 29 km of this straight line is a problem, as it slices across cultivated fields; note that the beginning of this segment is based only on the Sudan Survey map's geographic grid (no feature) and is thus approximate. Of course, the line is much more accurate near where it is anchored by the distinct Jebel Megeinis peak. This is fortunate, as the last two km of this line (minus the last half km on the peak's steep slopes) cuts through by far the most heavily built-up area near the entire 1956 line, the town of Al Miqenis.....at least 20 buildings and many more small lots are literally sliced by the line. This town does not appear on either the 1930's Sudan Survey map, the 1970's Soviet map (though a major road intersection does appear), nor

From Jebel Megeinis, the line follows the parallel defined by that peak's distinct summit due east for 71 km and is thus one of the entire line's few absolutely accurate sections. This could be fortunate, because, from the 0.6 km mark to the 1.6 km mark, the line again crosses the heavily built-up area of Al Miqenis, slicing another ten or so buildings and, at the 10 km mark, a small rectangular reservoir. Thus, northern and SW Al Miqenis fall on the "north" side of the 1956 line, and the middle part of Al Miqenis falls on the "south" side of the 1956 line, in a world-class gerrymander. Additionally, for the first 32 km of this parallel, the line slices across cultivated fields.

The line then turns north on the White Nile's main channel for 32 km to the lowest point on the Sudan

1956 Line at 1255 ft. above sea level. From there, the line runs across Buli Island on a parallel due east for about 3.5 km to the 26 ft. high triangulation survey pole NO6030 in the village of Dabbat al-Fukh Khar, then as a straight line just south of eastward for 52 km to the small, isolated Goz Nabak hilltop. These details are recorded in the boundary delimitation text decided upon and “fixed” in 1955 (though gazetted in 1956, after the long-established Jan. 1, 1956 deadline.)

The 1930’s Sudan Survey map uses of course the pre-1955 line established in Oct. 1920, placing it at 12-13-42N at the White Nile, which is 1.5 miles south of 12-15N as prescribed in the Oct.1920 text and about 890 meters south of the 1955 line used in this boundary extraction..... This 1920 line remains further south of the 1955 line in decreasing amounts until both meet at Goz Nabak. More details on this area can be found in the Dec. 2010 Douglas Johnson “When Boundaries Become Borders” report (pp. 69-73.) The 1955 line cuts through a half km of heavily built-up Dinka areas at Dabbat al-Fukh Hhar, though at least the more northern line, declared in authoritative documentation as “fixed in 1955” (see Johnson), awards to the north less Dinka settled area, and is used in this boundary delineation.

From the Goz Nabak hilltop amidst farmed fields, the line runs for 5.5 km due east on the Sudan Survey map or just south of eastward along a straight divide clearly visible on imagery to the Khawr Umm Koka. The difference between these two interpretations (this delineation uses the latter) ranges from zero meters at the west end to 115 meters at the east end. A problem on 38 km of the 61 km east-west line from the White Nile to the Khawr Umm Koka is that either line slices across cultivated fields.

The Khawr Umm Koka is followed SW for 7.5 km, then the boundary runs a further 2.5 km south along an older channel, the one depicted on the Sudan Survey map, further SE than the current channel. The problem of the line slicing cultivated fields is found for 100 of the next 140 km, as the line first runs as a single straight line SSW for 45 km to 11-45N, two km north of the Khawr Abu Khadra where this watercourse and geographic coordinates from the map match. A straight line for 14 km to the SW to Timsholl Gardens on the 1930’s map (not located; geographic map grid used) is followed by an 89 km straight line SSE to the small fixed sand dunes area of Qoz Atakdok; a site visible on imagery that possibly matches this description does in fact fall at the Sudan Survey map’s location.

The line next follows a straight line 6 km to the SW to a bend on the Khawr Wadudu, then a straight line 33 km SE to a bend on the Khawr es Sama’a, both visible on imagery. The next straight line runs 28 km SE to the “center” of a very distinct, isolated butte, Jebel Teilu. From here, the 1930’s Sudan Survey maps show no relevant boundary, as the boundary was shifted in 1953 to the favor of Blue Nile Province on the north, well documented on pp. 74-79 of Johnson’s 2010 report.

The 1953 line runs SE for 19 km to “a point between the village Gubartallah and the village Bella, then SE for 21 km to “a point between the villages Faragallah and Timsah.” Some faint clues on imagery, the Soviet 1:200,000 maps, the Johnson 2010 report (which provided estimated coordinates), and primarily the Sudan Survey maps all proved useful in locating these villages and placing a turning point midway between. Nevertheless, from here to Ethiopia must be considered among the most approximate sections of this line due to the lack of a precise description and the lack of any known line ever shown on any authoritative map of 1:250,000 scale or larger.

The 1953 text provides no guidance on how to span the next 3.5 km SE, and with no large scale map availability, the shortest straight line to the next feature was assumed and appears to be the case from small scale maps. The next feature in the 1953 text is vague in several characteristics: “Skirting the foot of Jebel Tombak on the north, and east...” This boundary delineation traces the approximate foot of the steeper sections of this small, isolated, oblong range of hills on the NE side for 4.5 km SE to the

next feature, "the old road trace" southward. This road, already an "old trace" in 1953, is not visible on imagery with a few possible exceptions. This boundary alignment must be considered particularly vague, as the road was not a boundary road when the map was surveyed and its mapping in a very approximate course is evident. Utilizing primarily the Sudan Survey map geographic grid coordinates, the old road's route was approximated from its crossing of the major Khwar Yabus at the 24 km mark to its end after 77 km by using elevation data and imagery, as the road swerves between a number of isolated hills and short ranges shown on the Sudan Survey map. The hills are steep enough and the passes between them flat enough to dictate that no road would go right up and then right back down any of these hills.

The final 10 km of the old road trace has the additional problem that the road is not shown on the Sudan Survey map. Here, however, the more pronounced hills again dictate a likely route for the road that is also along its same trajectory as the previous 20 km. At 9-30N, the boundary turns east and follows that parallel 55 km to a straight line segment of the Ethiopia boundary. The last six km of the line is the only mountainous section, reaching heights of nearly 4700 ft. above sea level.

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