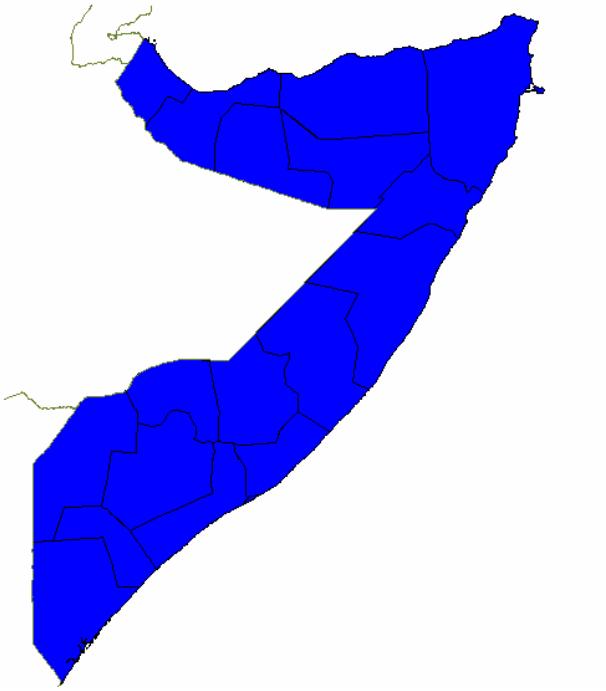
Somalia's Southern Marine Boundary



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Somalia's Southern Marine Boundary

Objective

The objective and aim of this paper is to describe the existed ocean boundaries for Somalia's southern end.

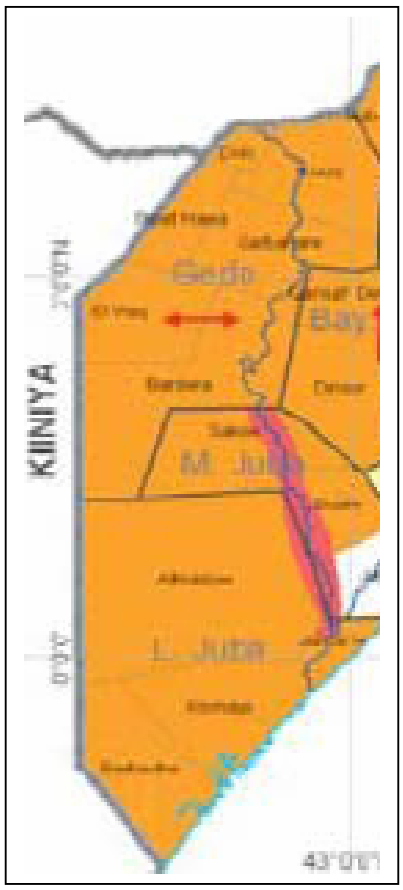
This paper describes technically to pursue the sovereignty and protection of Somalia's national resources and its related environment. This paper looks the geometrical continuation of the existing land boundary towards the Indian Ocean based on existed Anglo-Italian Agreement and/or Notes of Exchange. This paper shows how elaborations were made to determine coordinates of offshore points that coincide where the Somalia's southern Exclusive Economic Zone and Continental Shelf reach.

The first central question is, are there any existed definition(s) of maritime boundaries and if so, what are their basic principles?

Origin of the Southern Boundary

Before July 1924, the territories of Somalia located west of Jubba river i.e. western parts of the current Lower Jubba, Middle Jubba and Gedo regions were part of the Jubbaland of British East Africa Protectorate.

These territories were ceded to Italy as part of "Italian Somaliland" by the Anglo-Italian Treaty of 15 July 1924. However, the demarcation on the ground took place later on 1930 by creating a 4m width cutline made in the vegetation.



This boundary started from the Boundary Point near Belet Hawa /Mandera. After bending at 4 different locations (near Dhamase, El Waaq, northwest of Badhaadhe and north-west of Ras Kiamboni), it reaches the Indian Ocean at point immediately southwest of Ras Kiamboni known as Dar es Salam. The above mentioned boundary follows along a still visible road established as a demarcation boundary line between then British East Africa and Italian Somaliland.

The longest segment of boundary follows vertically along the $41^0\ 00'\ 00''$ meridian east of Greenwich.

The following inserted document carries the history of this southern boundary.

www.law.fsu.edu/library/collection/limitsinseas/IBS**134**.pdf

International Boundary Study

No. 134 – May 14, 1973

Kenya – Somalia Boundary

(Country Codes: KE-SO)

The Geographer
Office of the Geographer
Bureau of Intelligence and Research

INTERNATIONAL BOUNDARY STUDY

No. 134

KENYA – SOMALIA BOUNDARY

TABLE OF CONTENTS

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KENYA – SOMALIA BOUNDARY

I. BOUNDARY BRIEF

The Kenya - Somalia boundary is about 424 miles long. In the north the tripoint with Ethiopia is located on the thalweg of the Daua, and in the south the boundary extends to the Indian Ocean. It is demarcated by boundary pillars and consists of a series of straight-line segments.

II. HISTORICAL BACKGROUND

Initially the Kenya - Somalia boundary delimited British and Italian spheres of influence in East Africa between the Indian Ocean and the Daua (Daua Parma, Dawa). In 1887 the British East Africa Association was formed for the development of the British sphere of influence, and it obtained a concession from the Sultan of Zanzibar for part of his mainland territories. During the following year the Association was incorporated under a Royal charter as the Imperial British East Africa Company, and it assumed control of a large area now included in the present-day states of Kenya and Uganda.

Also in 1887 the military forces of Italy and Ethiopia clashed at Dogali, which resulted in the treaty of Wichale (Ucciali) the following year. Almost immediately the terms of the treaty were a source of disagreement between the two states. Italy considered Ethiopia to be an Italian protectorate, and that it had the right to administer Ethiopian foreign policy. Ethiopia interpreted the treaty to mean that the Emperor could request Italian advice and help in foreign affairs if he so desired.

Beginning in 1889, through a number of treaties of protection with the Somalis, Italy made various claims to the coast of Somalia along the Indian Ocean. In addition the Imperial British East Africa Company sublet the ports of the southern Benadir Coast north of the Giuba to Italy, ports which it held in lease from the Sultan of Zanzibar. In 1891, Italy, acting in the role of protector of Ethiopia in accordance with its interpretation of the treaty of Wichale (Ucciali), reached an agreement with the United Kingdom on their respective spheres. An Anglo - Italian treaty signed at Rome on March 24 of this year delimited a boundary as follows:

> 1. The line of demarcation in Eastern Africa between the spheres of influence respectively reserved to Great Britain and Italy shall follow from the sea the mid-channel (thalweg) of the River Jube [Giuba] up to latitude 6° north, Kismayn [Chisimayu] with its territory on the right bank of the river thus remaining to England.

In 1892 the Sultan of Zanzibar ceded the ports of Brava, Merca, Mogadiscio, and Uarsciech (Warsheikh) to Italy for 25 years subject to a fixed annual rent; however, 13 years later Italy purchased the ports from the Sultan. During 1895 the administration of Kenya was transferred to the British Crown, and the entity became known as the East

African Protectorate. In 1896, following a second clash between Ethiopia and Italian forces, the two states signed a peace treaty which officially annulled the treaty of Wichale. On June 24, 1897, the Menelik - Nerazzini treaty[1] attempted to draw a definitive boundary between Ethiopia and Italian Somaliland. The boundary was to be determined by a line drawn on a map by Emperor Menelik between British Somaliland and the cataracts of Van der Decken on the Giuba immediately north of Bardera. Shortly thereafter, with both states using different terms of reference for the location of the line, the alignment of the boundary became a source of dispute between Ethiopia and Italy. An Anglo - Ethiopian agreement of December 6, 1907, established a boundary between the East African Protectorate and Ethiopia, which on the east started at the confluence of the Daua and Ganale - Dorya. The following year, on May 16, 1908, an Ethiopian - Italian treaty afforded a new boundary between Ethiopia and Italian Somaliland which extended northeastward from Dolo, located at the confluence of the Daua and Ganale - Dorya, and British Somaliland. In June 1920 the East Africa Protectorate became Kenya colony and the coastal strip leased from the Sultan of Zanzibar became the protectorate of Kenya.[2]

Italian Somaliland was expanded by the Anglo - Italian treaty of July 15, 1924, under which an estimated 36,000 square miles of Kenya territory, commonly called Jubaland or Trans-Juba, was ceded to Italy in 1925 in accordance with an undertaking started in World War I. Jubaland was administered by Italy as a separate colony for one year and then incorporated into Italian Somaliland in 1926. Article 1 of the treaty describes the boundary[3] as follows:

> From the confluence of the rivers Ganale [Ganale - Dorya] and Daua, along the course of the Daua up-stream to the southern point of the small southerly bend of the latter river in the vicinity of Malka Re [Malca Rie]; thence in a south-westerly direction in a straight line to the centre of the pool of Dumasa [Damasa]; thence in a south-westerly direction in a straight line towards Eilla Kalla (which remains in British territory) to such meridian east of Greenwich as shall leave in Italian territory the well of El Beru [El Beru Hagia]; thence along the same meridian southwards until it reaches the boundary between the provinces of Jubaland and Tanaland; thence along the provincial boundary to a point due north of the point on the coast due west of the southernmost of the four islets in the immediate vicinity of Ras Kiambone (Dick's Head); thence due southwards to such point on

[1] The treaty was so-called because it was negotiated by Emperor Menelik of Ethiopia and Major Nerazzini of Italy.

[2] The Kenya protectorate comprised the mainland holdings of the Sultan of Zanzibar, in respect of which an annuity of 16,000 pounds per annum was paid to His Highness for their lease by the British. With an area of slightly less than 2,000 square miles, it consisted of a strip of land extending 10 sea miles inland along the coast of the Indian Ocean between Tanganyika and the northern branch of the Tana river, including the islands of the Lamu archipelago (Lamu, Manda, and Patta). The original concession was made in 1887 to a company later called the Imperial British East Africa Company; however, the administration of the strip was transferred to Her Majesty's Government in 1895. The territory was ceded by the Sultan to Kenya at the time the state became independent in 1963.

[3] The Kenya - Somalia boundary is sometimes referred to as the Milner - Sciaioja line. Lord Milner of the United Kingdom and Senatore Sciaioja of Italy were the principal negotiators of the boundary in 1920.

the coast, Ras Kiambone [Chiambone] [Dick's Head) and the four islets above mentioned shall fall within the territory to be transferred to Italy.

In the event, however, of it being found by the Commission referred to in article 12 that the well of El Beru does not contain water either sufficient or suitable for the maintenance at that point of an Italian frontier post, then the line, as between El Beru and Eilla Kalla, shall be so drawn by the Commission as to include in Italian territory the neighbouring well of El Shama [El Sciama].

Ratifications of the treaty of July 15, 1924, were exchanged in London on May 1, 1925. An agreement dated December 17, 1927, includes decisions regulating certain questions concerning the alignment of the boundary by the joint demarcation commission appointed under Article 12 of the treaty.

1. The Commission found that immediately up-stream from Malca Rie the Uebi Daua runs due East, and therefore does not form a small southerly bend as mentioned in Article 1 of the Treaty.

A point about 450 metres up-stream from Malca Rie was agreed upon as the northern terminal of the boundary.

2. The pivotal point of the boundary at the pool of Damasa was so chosen by the Commission that equal watering facilities should be afforded to both parties in the deepest portion of the depression without transgression of the boundary by either party.

3. In accordance with the power conferred by Article 1 of the Treaty, the Commission decided that, as there were elements of doubt as to the sufficiency of water for the maintenance of an Italian frontier post at El Beru Hagia in a very dry season and as to the security of the said well against collapse, the well of El Sciama should be included in Italian territory.

To allow access to El Sciama on all sides, the Commission also decided to adopt for the boundary the meridian passing about 300 metres to the west of this well.

4. The Commission took note of the communications of the 16th and 28th June, 1925, between His Britannic Majesty's Ambassador at Rome and the Head of the Government and Ministry of Foreign Affairs of His Majesty the King of Italy, in which the following formula was substituted for the definition given in the Treaty of the southern portion of the boundary:--

"Having regard to the fact that Ras Kiambone (Dick's Head) and the four small islands, which are in its immediate vicinity, form part of the territory to be transferred to Italy, it is understood that, upon reaching the meridian east of Greenwich which leaves in Italian territory the well of El Beru (or such other meridian east of Greenwich as may be recommended by the Commissioners in

accordance with paragraph 3 of Article 1 of the Treaty), the boundary shall follow such meridian southwards to the point of intersection of such meridian with the parallel of South Latitude 0°50'; thence proceeding in a south-easterly direction to a point situated about six kilometres north of the point on the coast due west of the southernmost of the four islets in the immediate vicinity of Ras Kiambone (Dick's Head); thence due southwards to such point on the coast. The coast shall be defined as the line of mean sea level ordinary spring tides."

The Commission declares that the general terms of this formula, since amended in accordance with the decisions recorded in paragraphs 5, 6 and 7 of this Agreement, have been embodied in Appendix I, Description of the Boundary.

5. Ras Chiamboni is a headland about 200 metres in breadth and about 800 metres in length, with its length parallel to the coast. It consists of a series of small coral eminences. The highest of these is approximately central.

Having been empowered to do so by the two Governments, the Commission decided that the summit of this highest eminence should be accepted as the terminal point of the directional line for the boundary towards the interior.

6. Article 1 of the Treaty states that there are 4 islets in the immediate vicinity of Ras Chiamboni.

The Commission found that there are actually 6 islets.

One of these is a prolongation of Ras Chiamboni to the north.

The other 5 form a group about 2 kilometres south-west from the control point of Ras Chiamboni, and are known collectively as Diua Damasciaca.

The most southerly islet of this group is little more than an almost circular coral rock about 50 metres in diameter.

The Commission, having been empowered to do so by the two Governments, decided that the parallel of latitude tangential to the southern extremity of this latter islet should define the position of the point at which the boundary reaches the coast.

7. Having been empowered to do so by the two Governments, the Commission decided that the short portion of the boundary defined in the Treaty by a meridian of longitude in the region of Ras Chiamboni should be moved parallel to itself in a westerly direction so that its southern terminal point should be 15 metres inland from high water mark and on the parallel of latitude mentioned in paragraph 6; the coastal waters being very shallow and high water mark being defined by the crumbling edge of a sand terrace.

The locality is known as Dar es Salam.

Concurrence was reached on additional points connected with the demarcation of the boundary in an Anglo - Italian agreement of August 27, 1930. The present alignment of the boundary is contained in an exchange of notes between the United Kingdom and Italy, which includes the "Agreement of the Boundary Commission, Appendices, and Map."

Following the Italian occupation of Ethiopia in 1935 - 36, Italian Somaliland was administered as part of Italian East Africa until World War II. Between 1941 and 1950, Italian Somaliland was occupied by United Kingdom and other Commonwealth forces. In 1950 the U.N. Trust Territory of Somaliland (Somalia) was organized and placed under Italian administration. An independent Somali Republic was proclaimed with the termination of the Trusteeship of Somaliland on July 1, 1960. At the same time Somalia merged with former British Somaliland (which previously had become independent on June 26, 1960) to form a single state.

Kenya was given internal self-government in May 1963 and became independent the following December. Exactly one year after independence, the constitution was changed to make Kenya a republic.

III. ALIGNMENT

The exchange of notes between Italy and the United Kingdom on November 22, 1933, contains the following alignment of the Kenya - Somalia boundary:

First Part - General Description.

Starting in the north from the Abyssinian frontier at a point in the "thalweg" of the Uebi Daua about 450 metres upstream from Malca Rie, the boundary passes, in a south-westerly direction, in a straight line through the point where the south bank of the Uebi Daua is intersected by the meridian of longitude 41°54'36.43" East of Greenwich to a point in the pool of Damasa so chosen as to afford equal watering facilities to both parties in the deepest portion of the pool without transgression of the frontier;

thence in a straight line and still in a south-westerly direction towards the centre of the well of El Ghala (of the El Wak group), which remains British, until this line is intersected by the meridian of longitude 40°59'44.34" East of Greenwich;

thence due south along this meridian, leaving the well of El Sciama in Italian territory, to its intersection with the parallel of South latitude 0°50'00.00";

thence in a straight line, in a south-easterly direction, towards the highest point of Ras Chiamboni until this line is intersected by the meridian of longitude which

passes through a point at Dar Es Salam 15 metres inland from High Water Mark and due west of the southern extremity of the southernmost of the group of 5 islets known as Diua Damasciaca;

thence due south along this meridian as far as the point at Dar Es Salam defined above;

thence, in a south-easterly direction, to the limit of territorial waters in a straight line at right angles to the general trend of the coastline at Dar Es Salam, leaving the islets of Diua Damasciaca in Italian territory.

Second Part - Detailed Description.

The boundary throughout its length is traced on the ground by a lane approximately 4 metres wide cut through the vegetation, and is indicated in a more permanent manner by primary and secondary beacons at intervals, each of which will be described hereinafter. The primary beacons have been numbered consecutively from the north, and these numbers are marked in ordinary arabic figures on the side of the beacon facing Italian Somaliland and in original arabic figures on the side facing Kenya.

At each angle of the boundary line there is a masonry or cement primary beacon together with a supplementary beacon on each side to indicate the directions of the two boundary lines converging on that point.

For convenience of description the boundary is divided into sections, each section corresponding with one of the straight portions of the boundary line already defined in the "General Description."

In each section, the lane is cut as nearly as possible in a straight line between its terminals; but owing to the errors inherent in the methods of survey adopted, very slight deviations from the straight line have inevitably resulted in certain localities.

All distance quoted hereinafter are reckoned from the northern terminal of the section concerned, and are correct to 100 metres.

The geographical positions of the points in the frontier zone given in Appendix II are those actually determined by astronomical and trigonometrical observations.

Normally the position of a control point, where a beacon was subsequently built, was fixed before the cut lane reached that point; but the positions of Primary Beacons Nos. 12, 24, 25, 26, 27 were dependent on astronomical observations made after the lane had been cut and they are thus slightly displaced from the positions they should occupy.

For two small lengths of a few metres, the boundary is indicated by alignment only. These are: --

a length in the north between Primary Beacon No. 1 and the Abyssinian frontier,

and a length in the south from Primary Beacon No. 29 to the sea.

Section 1.

From Primary Beacon No. 1 (Malca Rie) to Primary Beacon No. 6 (Damasa).[1]

Leaving the cemented masonry Primary Beacon No. 1 on the south bank of the Uebi Daua at its intersection with the meridian of longitude 41°54'36.43" East of Greenwich, the boundary passes in a south-westerly direction:—

through two secondary cairns astride the track leading southwards from Malka Got in Kenya;

through a secondary cairn and the adjacent cemented masonry Primary Beacon No. 2 located astride the road leading from Madera in Kenya to Malca Rie in Italian Somaliland;

through two secondary cairns astride the track leading from Malka Madera Yeri in Kenya to Corianu in Italian Somaliland;

through two secondary cairns astride the road leading from the British military post of Madera, which lies km. 1.2 from the boundary, Dambala Ghessa in Italian Somaliland;

through the area known as Funa Guba;

through a secondary cairn;

through two secondary cairns astride the track leading from Hunduda in Kenya through the pool of Gebia which lies km. 2.2 in Italian Somaliland to Gal Gali, which is about 12 kilometres from the boundary;

through two secondary cairns astride the track leading from Koromi, which hill lies about 6 kilometres in Kenya, to Gurgura in Italian Somaliland;

1. Part I of the Appendix to the Agreement contains the coordinates of the primary boundary beacons and the distances between successive beacons.

through the cemented masonry Primary Beacon No. 3;

through two secondary cairns astride the track leading southwards from Hunduda in Kenya;

through two secondary cairns astride a branch of the last-mentioned track north of Bur Gawse, which hill is in Kenya;

through two secondary cairns astride another branch of the same track, immediately south of Bur Gawse;

through two secondary cairns astride the same track where it turns away from the boundary towards Mata Arba in Italian Somaliland;

through a secondary cairn;

through two secondary cairns astride the track leading from Beila Machesa in Kenya to Mata Arba in Italian Somaliland;

though the area known as Hareri Hawseli;

through a secondary cairn;

through the area known as Hara Gulgula;

through a grave;

through the cemented masonry Primary Beacon No. 4, leaving the hill of Mata Arba about 9 kilometres in Italian Somaliland;

through two secondary cairns astride the track leading from Hafura past Ber Hawamadi in Kenya to El Uara, which well lies in Italian Somaliland km. 2.1 from the boundary;

through a secondary cairn;

through two secondary cairns astride the track passing between Finno and Hegali in a south-easterly direction;

through a large Primary Cairn erected on the south-east spur of the hill of Finno, the summit of which lies in Kenya;

through the cemented masonry Primary Beacon No. 5 and the adjacent secondary cairn, located astride the track leading from Hafura in Kenya to Iacle in Italian Somaliland;

through a secondary cairn;

through two secondary cairns astride the track leading from Berti Finno in Kenya to Gubbet Uasasa in Italian Somaliland;

through two secondary cairns astride the track leading from Berti Finno, which shambas lie in Kenya, to Iacle in Italian Somaliland;

through four secondary cairns, two astride each of the two tracks leading from Berti Finno in Kenya to Cuddama, which lies km. 3.0 in Italian Somaliland, leaving Bur Cus about 2 kilometres in Italian Somaliland;

through a secondary cairn;

through two secondary cairns astride the track leading from Manza in Kenya to Cuddama in Italian Somaliland;

touching the east side of a small pool unnamed which remains in Kenya;

along the east slope of Bur Manza, which remains in Kenya;

through two secondary cairns astride the track leading from Hawal Garba Hogi, which lies km. 1.7 in Kenya, to Cuddama in Italian Somaliland;

through a secondary cairn;

through two secondary cairns astride the track leading from Hawal Garba Hogi in Kenya to Damasa;

through a cemented masonry pointer beacon on the north-east edge of the depression of Damasa to the cemented masonry Primary Beacon No. 6 located in the deepest portion of that pool.

Section 2.

From Primary Beacon No. 6 (Damasa) to Primary Beacon No. 8 (angle at El Wak).

Leaving Primary Beacon No. 6, the boundary passes in a south-westerly direction, the alignment being indicated by a cemented masonry pointer beacon on the south-west edge of the depression:–

through two secondary cairns astride the road from Damasa to El Wak;

through a secondary cairn;

through two secondary cairns astride the road from Damasa to El Wak;

through a secondary cairn;

leaving the pool of Avein Nur km. 2.0 in Italian Somaliland;

leaving the pool of Daba km. 0.3 in Italian Somaliland;

through the cemented masonry Primary Beacon No. 7;

through a secondary cairn on the side of the road from Damasa to El Wak at a point where this road touches, but does not cross, the boundary on the Italian Somaliland side;

through a secondary cairn;

through two secondary cairns astride the track leading from Jalanto Lango in Kenya to Uenti Dima km. 1.0 in Italian Somaliland, leaving the pool of Uenti Digo km. 1.9 in Italian Somaliland;

through two secondary cairns astride the track leading from Arda Dadaja km. 1.0 in Kenya to Uenti Dima, in Italian Somaliland;

through a secondary cairn;

through two secondary cairns astride the track leading from Jaba Kurmama km. 0.8 in Kenya to Uarsesa Raghi km. 3.6 in Italian Somaliland;

through two secondary cairns astride the track leading northwards from Golati, which lies km. 3.0 in Italian Somaliland;

through a cemented masonry pointer beacon to the cemented masonry Primary Beacon No. 8, leaving El Golija and El Saqo in Kenya km. 2.4 and km. 4.1, respectively, from this beacon.

Section 3.

From Primary Beacon No. 8

(angle at El Wak) to Primary Beacon No. 23 (Latitude 0°50'00.00" South, Longitude 40°59'44.34" East of Greenwich).

Leaving Primary Beacon No. 8, the boundary passes due south, the alignment being indicated by a cemented masonry pointer beacon:–

through two secondary cairns astride the track leading from El Ghala, which lies km. 2.0 in Kenya to Golati in Italian Somaliland;

through the cemented masonry Primary Beacon No. 9, on the south side of the road leading from El Ghala in Kenya to El Sciama and El Beru Hagia, which wells lie km. 0.3 and km. 2.4, respectively, in Italian Somaliland;

through two secondary cairns astride the junction of the two tracks leading from El Bisq and El Dargula, respectively km. 1.0 and km. 7.0 in Kenya, to Gof in Italian Somaliland;

through two secondary cairns astride the track leading from El Sciama in Italian Somaliland in a direction south-south-west;

through the area known as Rama Gedoli;

through a secondary cairn;

through two secondary cairns astride the track leading from El Ghala through Megag, in Kenya and Rama Gedoli to Meri in Italian Somaliland;

through the area known as Gol Kio;

through a secondary cairn;

through two secondary cairns astride the track leading in a direction north-north-east from Wel Gersi, which lies km. 1.3 in Kenya;

through two secondary cairns astride the track leading from Wel Gersi in Kenya to Meri in Italian Somaliland;

through the cemented masonry Primary Beacon No. 10;

through two secondary cairns astride the track leading from Falama in Kenya to Bilaca in Italian Somaliland;

through two secondary cairns astride the track leading from Daka Laftu in Kenya round the north of the area known as Bute to Bilaca in Italian Somaliland;

through the area known as Bute;

through a secondary cairn;

leaving the hill of Ghedo Sama in Italian Somaliland;

through a secondary cairn;

through two secondary cairns astride the track leading from Ramu in Kenya through Ilalo to Bilaca in Italian Somaliland, leaving the group of wells of Ilalo about a third of a kilometre in Italian Somaliland;

through two secondary cairns astride the track leading from Ali Golo in Kenya to Gorgala, which is km. 2.0 in Italian Somaliland, leaving a small pool unnamed km. 0.2 in Kenya;

through the cemented masonry Primary Beacon No. 11;

through a secondary cairn on the north side of the track leading from El Kura, which is km. 1.8 in Kenya to Hara Cadera in Italian Somaliland;

through two second cairns astride the track leading from Kura Yeri in Kenya to Hara Cadera in Italian Somaliland;

through two secondary cairns astride the track leading from Kura in Kenya in a direction south-south-east;

through a secondary cairn;

through two secondary cairns astride the track leading from Konton in Kenya to Serenli in Italian Somaliland;

through a second cairn and the adjacent cemented masonry Primary Beacon No. 12 located astride the road from Wajer Bor in Kenya to Serenli in Italian Somaliland, leaving the pool of Dadol km. 0.2 in Kenya;

through a secondary cairn;

leaving two small pools unnamed km. 0.2 in Kenya;

through a small pool unnamed;

through a secondary cairn;

leaving the pools of Bactili about 1-1/2 kilometres in Italian Somaliland;

through the cemented masonry Primary Beacon No. 13;

through two secondary cairns astride the road leading from Wel Garas, which is km. 4.4 in Kenya, to Gherille, which is km. 4.9 in Italian Somaliland;

through a secondary cairn;

through a secondary cairn;

through the cement Primary Beacon No. 14;

crossing the track leading from Wel Adi in Kenya to the Gololati - Escudutca track;

crossing the track leading from Gololati in Kenya to Escudutca in Italian Somaliland;

through a secondary cairn;

through a secondary cairn;

through the cement Primary Beacon No. 15;

crossing the track leading from Hambalash to Dif, both of which places are in Kenya;

through a secondary cairn;

crossing Lake Bisq;

crossing the track leading from Hambalash to Dif, both of which places are in Kenya;

through the cement Primary Beacon No. 16 and the adjacent secondary cairn, located astride the motor road from Wajer Dima in Kenya to Afmadu in Italian Somaliland, leaving the group of pools of Dif about 1 kilometre in Kenya;

through a secondary earth gabion;[1]

crossing the track running in a north-westerly direction from Abodili in Italian Somaliland;

through a secondary earth gabion;

through the cement Primary Beacon No. 17;

through a secondary earth gabion;

1. The secondary earth gabions were scheduled to be replaced by cement or masonry beacons (cairns) in accordance with the terms of Paragraph 14 of the Agreement.

through a secondary earth gabion;

through the cement Primary Beacon No. 18 and the adjacent secondary earth gabion located astrice the road from Benani in Kenya to Au in Italian Somaliland;

crossing Lak Ghorqani, in which the "bisq" scrub is particularly dense;

crossing Lak Dera;

through a secondary earth gabion and the adjacent cement Primary Beacon No. 19, located astride the track leading from Liboi in Kenya to Dobli in Italian Somaliland;

through a small pool unnamed;

through a secondary earth gabion;

through a secondary earth gabion;

through a secondary earth gabion;

through a cement Primary Beacon No. 20, approximately on the Equator;

through a secondary earth gabion;

through a secondary earth gabion and the adjacent cement Primary Beacon No. 21, located astride the track leading in a north-westerly direction from Dib Ul Chena in Italian Somaliland;

through a secondary earth gabion;

crossing the road leading from Jara Jila, which lies km. 2.6 in Kenya, to Cormale in Italian Somaliland;

through a secondary earth gabion;

through the area known as Uarrach;

through a secondary earth gabion;

touching the east edge of the pool of Gangesa, which remains entirely in Kenya;

through a secondary earth gabion, leaving the pool of Dubra km. 2.9 in Italian Somaliland;

through the cement Primary Beacon No. 22 on the south side of the road leading from War Dod in Kenya to Cauitti in Italian Somaliland, leaving the pool of Bakaja Obe km. 2.7 in Kenya and that of Corio Cauitti km. 2.3 in Italian Somaliland;

crossing the track leading from Bakaja Obe in Kenya, to Gurara, which pool is km. 2.1 in Italian Somaliland;

through a secondary earth gabion;

between the two pools of Mata Arba, the larger one falling in Kenya, the smaller in Italian Somaliland;

touching the west edge of the pool of Cascia Debin, which remains entirely in Italian Somaliland;

through a secondary earth gabion;

a grave which lies immediately on the east of the boundary;

crossing Lach Sara;

crossing the track leading from Kasha Gurgurda in Kenya to Mug Domaro in Italian Somaliland, leaving the pool of Sara km. 0.5 in Italian Somaliland;

through a cement pointer beacon to the cement Primary Beacon No. 23.

Section 4.

From Primary Beacon No. 23 (Latitude 0°50'00.00" South, Longitude 40°59'44.34" East of Greenwich to Primary Beacon No. 28 (angle near Chiamboni).

Leaving Primary Beacon No. 23, the boundary passes in a south-easterly direction, the alignment being indicated by a cement pointer beacon:—

crossing a "lak" unnamed;

through two cement secondary beacons astride the road leading from Ilkabere in Kenya to Mug Domaro in Italian Somaliland;

through a cement secondary beacon;

crossing the road leading from Odolabambu in Kenya to Ulaul in Italian Somaliland;

crossing the track leading from the group of pools of Dambala in Kenya to Ulaul in Italian Somaliland;

through two cement secondary beacons astride the road leading from Dambala in Kenya to Cussa in Italian Somaliland;

through two cement secondary beacons astride the track leading from Konoghori in Kenya to Dola in Italian Somaliland;

through the cement Primary Beacon No. 24;

through a cement secondary beacon opposite the pool of Juma Korke which lies in Kenya;

through a series of three cement secondary beacons spaced across the scattered tracks leading from Rama Jebia in Kenya to Hola Dugium in Italian Somaliland;

through a series of five cement secondary beacons accentuating the partition of the pools of Kolbio;

through a series of three cement secondary beacons spaced across the scattered tracks on the caravan route leading from Lama Det in Kenya to Uama Idu in Italian Somaliland;

through the cement Primary Beacon No. 25, in the area of Did Sanga;

passing a small pool unnamed which falls in Kenya;

through a cement secondary beacon;

through a belt of forest with dense undergrowth, known as the "bada";

crossing the Lak at Gibitcilaua which remains in Italian Somaliland;

through a cement secondary beacon;

through another belt of the "bada";

leaving the group of pools of Hele Keberye km. 0.4 in Kenya;

through two cement secondary beacons on the edge of the depression of a pool unnamed half-way between the groups of Kon Tuwari in Kenya and Nuidi in Italian Somaliland, the pool lying in Italian Somaliland;

through a cement secondary beacon, leaving the pool of Doria in Kenya and that of Burrada Ier in Italian Somaliland;

through a cement secondary beacon and the adjacent cement Primary Beacon No. 26, which accentuate the division of a pool unnamed lying astride the boundary;

through a cement secondary beacon on the south-east side of the track leading from Mbogo in Kenya to the group of pools of Labchelli which lies about ½ kilometre in Italian Somaliland;

through two cement secondary beacons astride the track leading from Wanyeka in Kenya to Baraca in Italian Somaliland, leaving Kon Malabi in Kenya.

through two cement secondary beacons astride the track leading from Pepechono km. 0.4 in Kenya to Billada km. 2.9 in Italian Somaliland;

through the cemented masonry Primary Beacon No. 27 on top of the most inland ridge of the coastal hills;

through a series of five cemented masonry secondary beacons spaced across a clearing, the last of the series being on the north side of the track leading from Jawasi in Kenya to Comauala which lies km. 1.1 in Italian Somaliland;

through a cemented masonry secondary beacon on the north side of the track leading from Mwangati in Kenya to Meri in Italian Somaliland;

through a series of four cemented masonry secondary beacons spaced across the shambas;

through a cemented masonry pointer beacon to the cemented masonry Primary Beacon No. 28.

Section 5.

From Primary Beacon No. 28 (angle near Chiamboni) to Primary Beacon No. 29 (Dar Es Salam).

Leaving Primary Beacon No. 28, the boundary passes due south, the alignment being indicated by a cemented masonry pointer beacon:–

leaving the pool of Mado km. 0.1 in Kenya;

leaving the pool of Con Sagarada km. 0.1 in Italian Somaliland;

through a series of five secondary cairns of coral spaced across open ground to the coastal road;

through a cemented masonry pointer beacon to the large cemented masonry Primary Beacon No. 29 at Dar Es Salam.

DOCUMENTATION

1. Protocols between the Governments of Her Britannic Majesty and of His Majesty the King of Italy, for the Demaracation of their respective Spheres of Influence in Eastern Africa, March 24 and April 15, 1891. Great Britain Treaty Series, Italy No. 1 (1891), C. 6316.

2. Agreement between the United Kingdom and Ethiopia relative to the Frontiers between British East Africa, Uganda, and Ethiopia, December 6, 1907. Great Britain Treaty Series No. 27 (1908), Cd. 4318.

3. Convention between Italy and Ethiopia for the settlement of the Frontier between the Italian Possessions of Somali and the Provinces of the Ethiopian Empire, May 16, 1908. The Map of Africa by Treaty, 3 vol., 3rd Edition (London: Harrison and Sons, 1909), Vol. 2, pp. 1223 - 4.

4. Treaty between the United Kingdom and Italy regulating Certain Questions concerning the Boundaries of their respective Territories in East Africa, July 15, 1924. Great Britain Treaty Series, Italy, No. 1 (1924), Cmd. 2194 [with maps].

5. Treaty between the United Kingdom and Italy regulating Certain Questions concerning the Boundaries of their respective Territories in East Africa, July 15, 1924. Great Britain Treaty Series No. 29 (1925), Cmd. 2427.

6. Agreement recording the Decisions of the Commission appointed under the Treaty between the United Kingdom and Italy of July 15, 1924 regarding the Boundary between Kenya and Italian Somaliland, December 17, 1927. Great Britain Treaty Series, Italy, No. 1 (1933), Cmd. 4230.

7. Agreement between the Local Commissioners appointed to settle certain points connected with the Demarcation of the Boundary between Kenya and Italian Somaliland as determined by the Commissioners under the Treaty between the United Kingdom and Italy of July 15, 1924; August 27, 1930. Great Britain Treaty Series, Italy No. 2 (1933), Cmd. 4231.

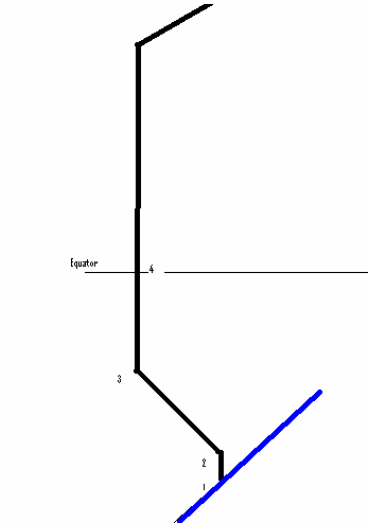
8. Exchange of Notes between His Majesty's Government in the United Kingdom and the Italian Government regarding the Boundary between Kenya and Italian Somaliland with the Agreement of the Boundary Commission, Appendices and Map, November 22, 1933. Great Britain Treaty Series No. 1 (1934), Cmd. 4491.

This International Boundary Study is one of a series of specific boundary papers prepared by The Geographer, Office of the Geographer, Directorate for Functional Research, Bureau of Intelligence and Research, Department of State, in accordance with provisions of the Office of Management and Budget Circular No. A-16.

Government agencies may obtain additional information and copies of the study by calling The Geographer, Room 8744, Department of State, Washington, D.C. 20520 (Telephone: 63-22021 or 63-22022).

Interpretation of Anglo_Italian Agreement and calculation of corresponding Coordinates

Points 1, 2 shown on the following diagram are the most important from points, particularly Point 1 known as Dar es Salam.



The diagram on the left side shows main points where the border bends significantly:

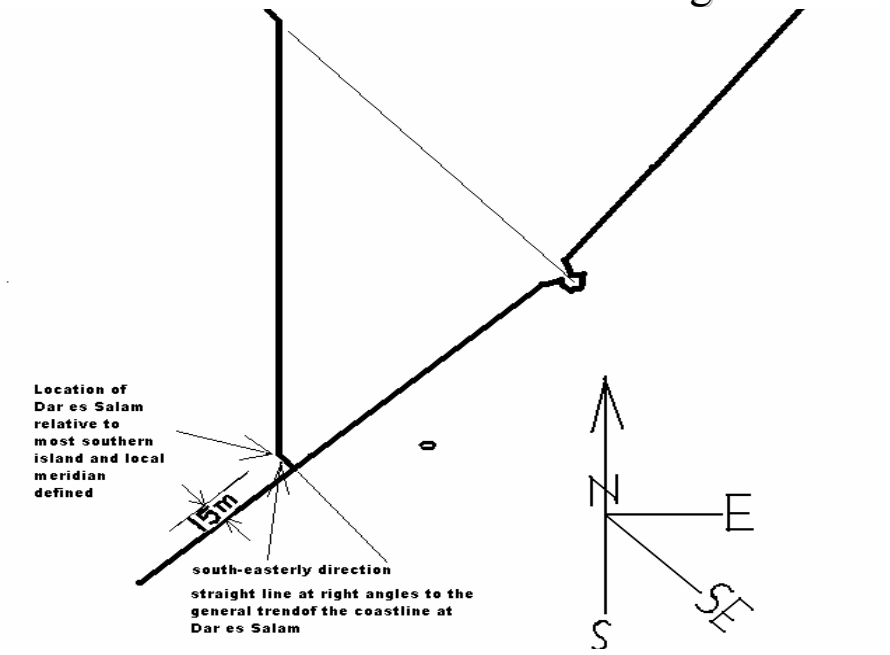
1- is a point known as **Dar es Salam** in the Anglo-Italian Agreement located 15 from the coast line and on the boundary. It is 4.2km by track southwest of Ras Kiamboni

2- Corner on the land located 7.4km north of Point1.

3- A corner northwest of Badhaadhe.

4- A point where the meridian 41^0 intersects with the Equator.

The same point (Dar es Salam) is shown on enlarged diagram with last stressed directions defined on the Anglo-Italian Treaty:

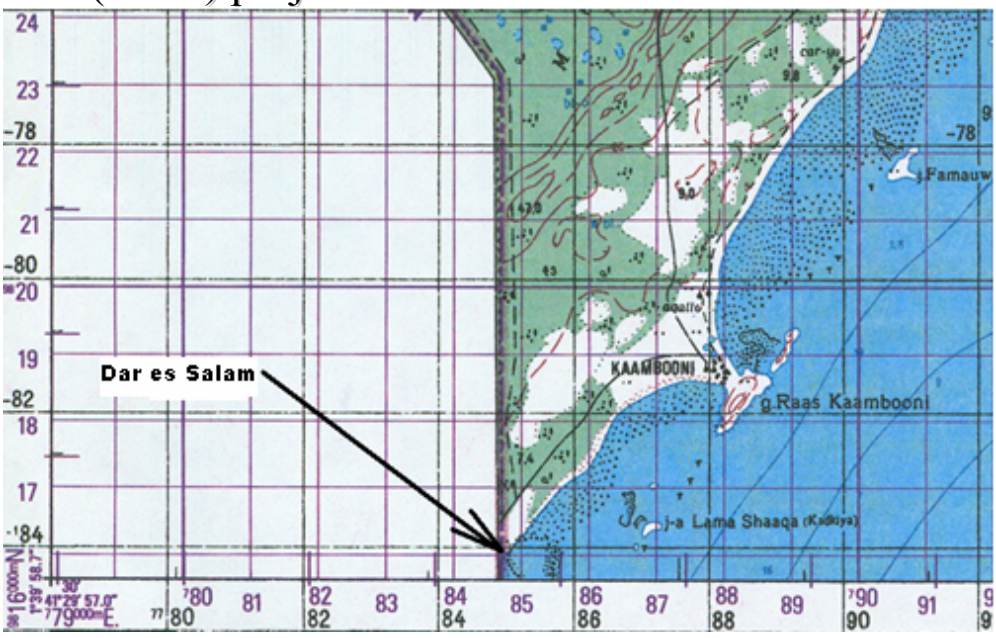


The latitudes and longitudes of the Dar es Salam based on the WGS84 ellipsoid as part of the southern hemisphere.

Latitude (WGS84) ° ' "	Longitude (WGS84) ° ' "	Point as described in the Anglo_Italian Treaty
01 39 45.154 S	41 33 31.908 E	Dar es Salam

Calculation of Easting and Northing in metres of the (Dar es Salam) is needed. The reason is that Latitudes and Longitudes are geodetic (spheroid) coordinate. Distances calculated on the spheroid differ for each direction and for every position which depends on continually changing the radius of the reference spheroid. Additionally, Kenya Somali boundary shown on the Google Earth, particularly, from the equator till it ends the coast is also shifted by more than 700m towards inside Somalia. Distances based on geodetic coordinates projected onto a plane are not affected by directions and local radius.

Thus, calculated Easting and Northing coordinates are derived by projecting the geodetic Latitudes and Longitudes onto plane in Zone 37 but south of the Equator using Universal Transverse Mercator (UTM) projection.



It is important to mention that given coordinates of (Dar es Salam) in the tables and that on the official map shown on this page are consistent.

Point Name	Easting	Northing
	m	m
Dar es Salam	784713.50	9816054.00

The inserted Anglo-Italian agreement or the note of exchange, particularly, in the last 3 paragraphs of section First Part – General Description of III Alignment (page 6-7 of the inserted document) state:

thence in a straight line, in a south-easterly direction, towards the highest point of Ras Chiamboni until this line is intersected by the meridian of longitude which passes through a point at Dar Es Salam 15 metres inland from High Water Mark and due west of the southern extremity of the southernmost of the group of 5 islets known as Diua Damasciaca;

thence due south along this meridian as far as the point at Dar Es Salam defined above;

thence, in a ***south-easterly direction****, to the limit of territorial waters in a straight line* ***at right angles to the general trend of the coastline*** *at Dar Es Salam, leaving the islets of Diua Damasciaca in Italian territory.*

If the content of theses 3 paragraphs is part of a legal document, the first paragraph describes the direction of the straight line from Point 3 to Point 2 by going south-easterly as if going to highest point on the Ras Kiamboni Peninsula. From here, paragraph 1 starts to define how the boundary bends and that it takes to the direction of a meridian (i.e. north-south direction).

The later meridian passes through Dar es Salam. The same paragraph also defines the continuation *as far as point at Dar es Salam* located *15m from the high water mark*. Additional description of the location of Dar es Salam ...*and due west of 5 islets particularly west of the most southern island known as Diua Damasciaca*. This paragraph clearly continued to state only about the location of Dar es Salam but not intended for ocean boundary.

The second paragraph stresses and further clarifies in a simple way the direction of the line between Point 2 and Dar es Salam *due south along this meridian as far as the point at Dar Es Salam* and clearly adds *defined above* it means that the first paragraph was defining not an ocean boundary but was defining the location of Dar es Salam.

The third paragraph starts to describes the ***direction*** of a 15m line that joins between Dar es Salam and the ocean i.e. *in a* ***south-easterly*** *direction* (means approximately 90^{o} +45^{o}=135^{o} reckoned clockwise from north and not to any other direction) and to the *limit of the territorial waters.* Direction of continuation of the boundary is only mentioned in this third paragraph, also *in a straight line* ***at right angles to the general trend of the coastline*** *at Dar Es Salam, leaving the islets of Diua Damasciaca in Italian territory.*

This means we are facing a line starting from Dar es Salam towards the Indian Ocean and perpendicular or ***at right angle to general trend of the coastline at Dar Es Salam***.

This is confirmed by the Kenyan Government in its Maritime Zones Act, August 1989 and submitted to the United Nations.
http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/KEN_1989_Maritime.pdf

Part of this document states:

FIRST SCHEDULE
AREA OF THE TERRITORIAL WATERS

The area of the territorial waters of the Republic of Kenya extends on the coastline adjacent to the High Seas to a point twelve international nautical miles seawards from the straight baselines, low water lines or low tide elevations, hereinafter described as follows:

Commencing on the straight line joining Diua Damasciaca Island and Kiungamwina Island at the point at which this line is intersected perpendicularly by the Median straight line drawn from Boundary Pillar 29 (being the terminal pillar of the Kenya-Somalia boundary);

thence continuing south westerly by a straight base line to Kiungamwina Island;
thence south westerly by a straight base line for about 25 km. to Little Head;
thence south westerly by a straight base line for about 11 km. to Boteler Island;
…….

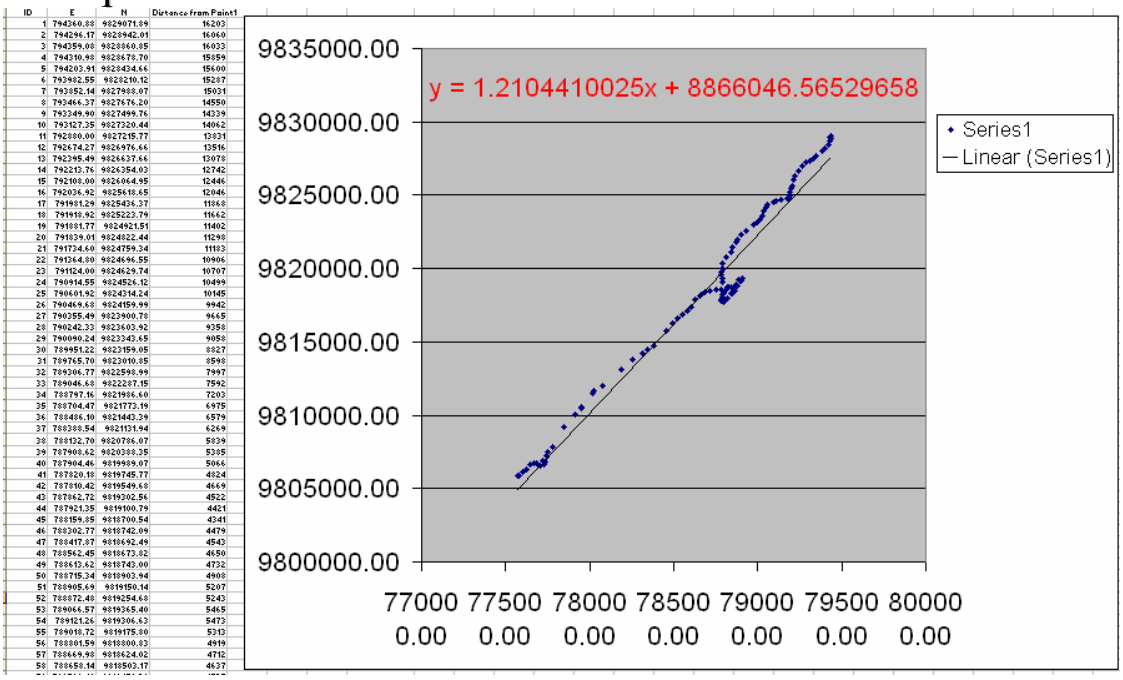
Kiungamwina Island is located at Latitude -1.7666667°, Longitude 41.5°. The spatial interpretation of the second paragraph is according to the Anglo-Italian Treaty:

NB: Kenya-Somalia Boundary, particularly south of equator, is not properly positioned on Google Earth.

So, instead of a line parallel to coast located offshore, as understood by Kenya, we need to determine the general trend of the coastline at Dar es Salam as defined by the treaty. Both intensions have common target (line perpendicular to a line representing the coastline) but little difference in approach.

Therefore, for this purpose points along the coastline were extracted from Google Earth. These points represent the coastline that contains both the Kenyan coastline (14km towards southwest) and the Somali coastlines (16km towards northeast) from Dar es Salam.

The geodetic coordinates were transformed into UTM Zone 37 South and then were put into EXCEL as shown on the following screen print.



This extracted trend line represents mathematically the general trend of the coastline. The equation of the trend-line became:

$$y = 1.2104410025x + 8866046.565$$

From mathematical view of any linear equation,

$$y = m*x + b;$$

$$where\ m = tan\,\alpha$$

the first coefficient i.e. *1.2104410025* is equal to the tangent of the angle α between the horizontal X-axis and the trend line. Thus:

$$tan\ \alpha = 1.2104410025$$

$$\alpha = 50.438349250191 or$$

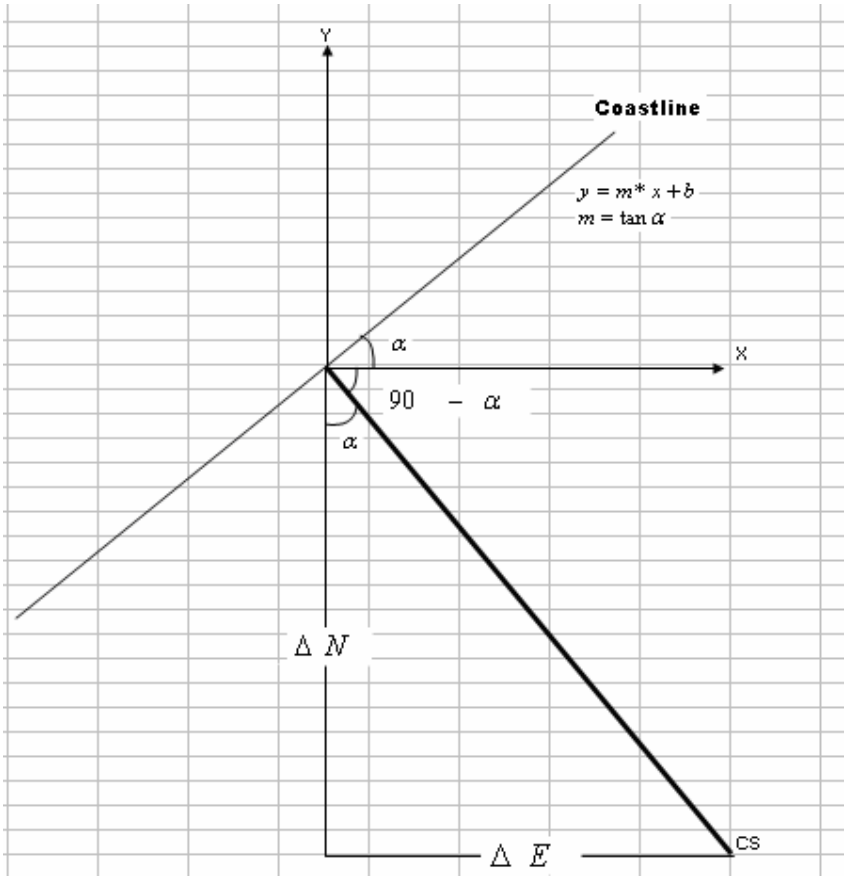
Geodetically on ellipsoids or on maps bearings are reckoned from North direction. Therefore, $90 - \alpha$ is the bearing of the general coastline.

$$90- \alpha = 90- (50^0\ 26'\ 18.0573'') = 39^0\ 33'\ 41.9427''$$

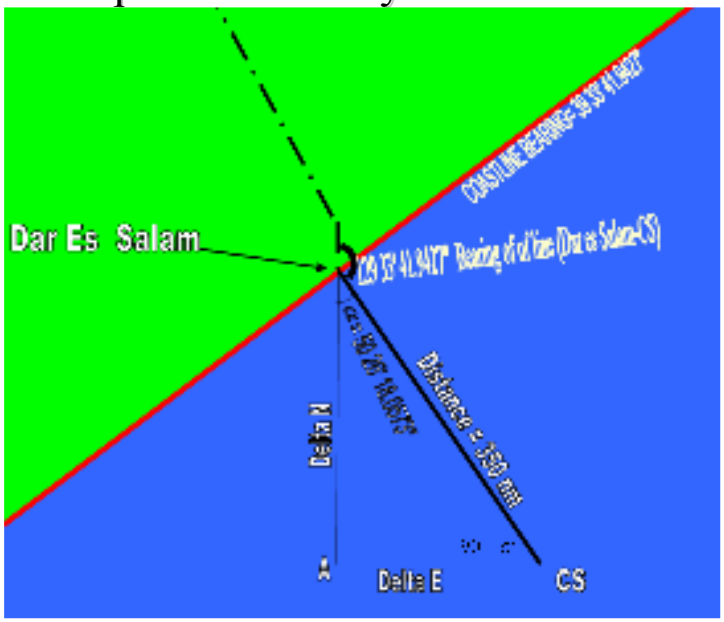
In the following diagram, let CS be a point located far offshore and distant 350 nautical miles from Dar es Salam and its direction to be perpendicular to the general coast at Dar es Salam.

Thus, the bearing of line Dar es Salam-CS = $129^0\ 33'\ 41.9427''$

The following sketch indicates the relationship between different angles. Geometrical simple solution gives us that the acute angle of the triangle at Dar es Salam equals
$\alpha = 50^0\ 26'\ 18.0573''$.



NB: the following diagram is to illustrate the result of the angular relationship in values only.



It is clear not to confuse between mile and nautical mile (nm).

1mile approx. = 1609metres while
1nautical mile approx. = 1852metres.

The following formula will be used to calculate and determine the coordinates at the end point (CS) of the 350nm line.

For Continental Shelf, 350 nautical miles = 350 x 1852m = 648200m. Let the last point of the Continental Shelf (CS) be CS:

$$E_{CS} = E_{DaresSalam} + 648200 \text{ x SIN } \alpha$$

$$N_{CS} = N_{DaresSalam} - 648200 \text{ x COS } \alpha$$

After inserting values:

$$E_{CS} = 784713.50 + 648200 \text{ x SIN } (50^0\ 26'\ 18.0573")$$

$$N_{CS} = 9816054.00 - 648200 \text{ x COS } (50^0\ 26'\ 18.0573")$$

The calculated UTM coordinates (Easting and Northing) in extended Zone 37 South of the point located 350 nautical miles from the coast and perpendicular to the coast will be:

$$E_{CS} = 1284436.62\text{m}$$

$$N_{CS} = 9403210.15\text{m}$$

The corresponding geodetic coordinates of this same point are:

Latitude of CS = 05^0 21 29.4669" S

Longitude of CS = 46^0 03 45.0319" E

Spatially, the location of CS falls as shown on the following Google Earth image:

The following attached table shows coordinates of intermediate locations along Somalia's southern marine boundary line at every 3 nautical mile starting from Dar es Salam located on the coast up to point CS located 350nm towards offshore.

The coordinates of points are given in the format of UTM in Zones 37 and same points in Zone 38. Also coordinates of same points are given in Geodetic Latitudes and Longitudes coordinates.

PointID	Chainage	Chainage	E	N	E	N	Latitude(S)		Longitude(E)		Latitude(S)				Longitude(E)			
			UTM Zone37	UTM Zone37	UTM Zone38	UTM Zone38	WGS84		WGS84		WGS84				WGS84			
	nautical mile	m	m	m	m	m	DD.DDDDD		DD.DDDDD		o	'	"		o	'	"	
Dar es Salam	0	0	784713.50	9816054.00	117016.28	9815904.59	1.662542808	S	41.558863314	E	1	39	45.1541	S	41	33	31.9079	E
O1	3	5556	788996.84	9812515.34	121313.80	9812376.35	1.694474215	S	41.597375701	E	1	41	40.1072	S	41	35	50.5525	E
O2	6	11112	793280.18	9808976.68	125611.22	9808848.63	1.726402882	S	41.635888971	E	1	43	35.0504	S	41	38	9.2003	E
O3	9	16668	797563.52	9805438.02	129908.54	9805321.40	1.758328765	S	41.674403145	E	1	45	29.9836	S	41	40	27.8513	E
O4	12	22224	801846.86	9801899.35	134205.77	9801794.66	1.790251911	S	41.712918239	E	1	47	24.9069	S	41	42	46.5057	E
O5	15	27780	806130.21	9798360.69	138502.90	9798268.43	1.822172096	S	41.751434362	E	1	49	19.8195	S	41	45	5.1637	E
O6	18	33336	810413.55	9794822.03	142799.93	9794742.71	1.854089367	S	41.789951351	E	1	51	14.7217	S	41	47	23.8249	E
O7	21	38892	814696.89	9791283.37	147096.85	9791217.48	1.886003679	S	41.828469316	E	1	53	9.6132	S	41	49	42.4895	E
O8	24	44448	818980.23	9787744.71	151393.68	9787692.76	1.917914989	S	41.866988273	E	1	55	4.4940	S	41	52	1.1578	E
O9	27	50004	823263.57	9784206.05	155690.41	9784168.53	1.949823254	S	41.905508240	E	1	56	59.3637	S	41	54	19.8297	E
O10	30	55560	827546.91	9780667.38	159987.04	9780644.80	1.981728520	S	41.944029237	E	1	58	54.2227	S	41	56	38.5053	E
O11	33	61116	831830.25	9777128.72	164283.57	9777121.57	2.013630563	S	41.982551279	E	2	0	49.0700	S	41	58	57.1846	E
O12	36	66672	836113.59	9773590.06	168580.00	9773598.85	2.045529429	S	42.021074387	E	2	2	43.9059	S	42	1	15.8678	E
O13	39	72228	840396.93	9770051.40	172876.34	9770076.62	2.077425076	S	42.059598577	E	2	4	38.7303	S	42	3	34.5549	E
O14	42	77784	844680.27	9766512.74	177172.57	9766554.90	2.109317460	S	42.098123867	E	2	6	33.5429	S	42	5	53.2459	E
O15	45	83340	848963.62	9762974.08	181468.72	9763033.68	2.141206536	S	42.136650366	E	2	8	28.3435	S	42	8	11.9413	E
O16	48	88896	853246.96	9759435.42	185764.75	9759512.95	2.173092262	S	42.175177911	E	2	10	23.1321	S	42	10	30.6405	E
O17	51	94452	857530.30	9755896.75	190060.69	9755992.72	2.204974684	S	42.213706610	E	2	12	17.9089	S	42	12	49.3438	E
O18	54	100008	861813.64	9752358.09	194356.53	9752473.00	2.236853578	S	42.252236482	E	2	14	12.6729	S	42	15	8.0513	E
O19	57	105564	866096.98	9748819.43	198652.27	9748953.77	2.268728991	S	42.290767543	E	2	16	7.4244	S	42	17	26.7632	E
O20	60	111120	870380.32	9745280.77	202947.91	9745435.05	2.300600879	S	42.329299812	E	2	18	2.1632	S	42	19	45.4793	E
O21	63	116676	874663.66	9741742.11	207243.45	9741916.82	2.332469198	S	42.367833307	E	2	19	56.8891	S	42	22	4.1999	E
O22	66	122232	878947.00	9738203.45	211538.89	9738399.10	2.364333906	S	42.406368045	E	2	21	51.6021	S	42	24	22.9250	E
O23	69	127788	883230.34	9734664.78	215834.23	9734881.86	2.396195049	S	42.444904045	E	2	23	46.3022	S	42	26	41.6546	E
O24	72	133344	887513.68	9731126.12	220129.47	9731365.13	2.428052402	S	42.483441324	E	2	25	40.9886	S	42	29	0.3888	E
O25	75	138900	891797.03	9727587.46	224424.63	9727848.91	2.459906013	S	42.521979990	E	2	27	35.6616	S	42	31	19.1280	E
O26	78	144456	896080.37	9724048.80	228719.67	9724333.18	2.491755838	S	42.560519880	E	2	29	30.3210	S	42	33	37.8716	E
O27	81	150012	900363.71	9720510.14	233014.62	9720817.95	2.523601834	S	42.599061104	E	2	31	24.9666	S	42	35	56.6200	E

O28	84	155568	904647.05	9716971.48		237309.46	9717303.22		2.555443957	S	42.637603678	E		2	33	19.5982	S	42	38	15.3732	E
O29	87	161124	908930.39	9713432.82		241604.21	9713788.99		2.587282163	S	42.676147619	E		2	35	14.2158	S	42	40	34.1314	E
O30	90	166680	913213.73	9709894.15		245898.86	9710275.25		2.619116501	S	42.714692947	E		2	37	8.8194	S	42	42	52.8946	E
O31	93	172236	917497.07	9706355.49		250193.40	9706762.02		2.650946744	S	42.753239679	E		2	39	3.4083	S	42	45	11.6628	E
O32	96	177792	921780.41	9702816.83		254487.85	9703249.28		2.682772941	S	42.791787832	E		2	40	57.9826	S	42	47	30.4362	E
O33	99	183348	926063.75	9699278.17		258782.20	9699737.05		2.714595047	S	42.830337423	E		2	42	52.5422	S	42	49	49.2147	E
O34	102	188904	930347.10	9695739.51		263076.46	9696225.31		2.746413020	S	42.868888562	E		2	44	47.0869	S	42	52	7.9988	E
O35	105	194460	934630.44	9692200.85		267370.61	9692714.07		2.778226816	S	42.907441085	E		2	46	41.6165	S	42	54	26.7879	E
O36	108	200016	938913.78	9688662.18		271664.67	9689203.33		2.810036482	S	42.945995100	E		2	48	36.1313	S	42	56	45.5824	E
O37	111	205572	943197.12	9685123.52		275958.62	9685693.09		2.841841794	S	42.984550625	E		2	50	30.6305	S	42	59	4.3823	E
O38	114	211128	947480.46	9681584.86		280252.47	9682183.34		2.873642798	S	43.023107678	E		2	52	25.1141	S	43	1	23.1876	E
O39	117	216684	951763.80	9678046.20		284546.22	9678674.10		2.905439452	S	43.061666275	E		2	54	19.5820	S	43	3	41.9986	E
O40	120	222240	956047.14	9674507.54		288839.88	9675165.36		2.937231711	S	43.100226435	E		2	56	14.0342	S	43	6	0.8152	E
O41	123	227796	960330.48	9670968.88		293133.43	9671657.11		2.969019533	S	43.138788176	E		2	58	8.4703	S	43	8	19.6374	E
O42	126	233352	964613.82	9667430.21		297426.89	9668149.35		3.000802965	S	43.177351514	E		3	0	2.8907	S	43	10	38.4655	E
O43	129	238908	968897.16	9663891.55		301720.24	9664642.10		3.032581782	S	43.215916468	E		3	1	57.2944	S	43	12	57.2993	E
O44	132	244464	973180.51	9660352.89		306013.51	9661135.35		3.064356032	S	43.254483144	E		3	3	51.6817	S	43	15	16.1393	E
O45	135	250020	977463.85	9656814.23		310306.67	9657629.09		3.096125671	S	43.293051382	E		3	5	46.0524	S	43	17	34.9850	E
O46	138	255576	981747.19	9653275.57		314599.73	9654123.34		3.127890655	S	43.331621287	E		3	7	40.4064	S	43	19	53.8366	E
O47	141	261132	986030.53	9649736.91		318892.68	9650618.08		3.159650942	S	43.370192878	E		3	9	34.7434	S	43	22	12.6944	E
O48	144	266688	990313.87	9646198.25		323185.54	9647113.32		3.191406489	S	43.408766172	E		3	11	29.0634	S	43	24	31.5582	E
O49	147	272244	994597.21	9642659.58		327478.30	9643609.04		3.223157341	S	43.447341187	E		3	13	23.3664	S	43	26	50.4283	E
O50	150	277800	998880.55	9639120.92		331770.96	9640105.28		3.254903276	S	43.485917940	E		3	15	17.6518	S	43	29	9.3046	E
O51	153	283356	1003163.89	9635582.26		336063.52	9636602.01		3.286644340	S	43.524496448	E		3	17	11.9196	S	43	31	28.1872	E
O52	156	288912	1007447.23	9632043.60		340355.98	9633099.24		3.318380490	S	43.563076729	E		3	19	6.1698	S	43	33	47.0762	E
O53	159	294468	1011730.57	9628504.94		344648.35	9629596.97		3.350111683	S	43.601658801	E		3	21	0.4021	S	43	36	5.9717	E
O54	162	300024	1016013.92	9624966.28		348940.62	9626095.19		3.381837874	S	43.640242770	E		3	22	54.6163	S	43	38	24.8740	E
O55	165	305580	1020297.26	9621427.61		353232.78	9622593.91		3.413559113	S	43.678828475	E		3	24	48.8128	S	43	40	43.7825	E
O56	168	311136	1024580.60	9617888.95		357524.84	9619093.13		3.445275174	S	43.717416022	E		3	26	42.9906	S	43	43	2.6977	E
O57	171	316692	1028863.94	9614350.29		361816.81	9615592.84		3.476986105	S	43.756005429	E		3	28	37.1500	S	43	45	21.6195	E
O58	174	322248	1033147.28	9610811.63		366108.67	9612093.06		3.508691863	S	43.794596713	E		3	30	31.2907	S	43	47	40.5482	E
O59	177	327804	1037430.62	9607272.97		370400.44	9608593.77		3.540392404	S	43.833189892	E		3	32	25.4127	S	43	49	59.4836	E
O60	180	333360	1041713.96	9603734.31		374692.10	9605094.98		3.572087685	S	43.871784983	E		3	34	19.5157	S	43	52	18.4259	E
O61	183	338916	1045997.30	9600195.65		378983.67	9601596.68		3.603777663	S	43.910382003	E		3	36	13.5996	S	43	54	37.3752	E
O62	186	344472	1050280.64	9596656.98		383275.13	9598098.87		3.635462384	S	43.948980970	E		3	38	7.6646	S	43	56	56.3315	E
O63	189	350028	1054563.99	9593118.32		387566.51	9594601.57		3.667141626	S	43.987581990	E		3	40	1.7099	S	43	59	15.2952	E

O64	192	355584	1058847.33	9589579.66		391857.78	9591104.77		3.698815436	S	44.026184901	E		3	41	55.7356	S	44	1	34.2656	E
O65	195	361140	1063130.67	9586041.00		396148.95	9587608.46		3.730483770	S	44.064789810	E		3	43	49.7416	S	44	3	53.2433	E
O66	198	366696	1067414.01	9582502.34		400440.01	9584112.65		3.762146584	S	44.103396735	E		3	45	43.7277	S	44	6	12.2282	E
200NM	200	370400	1070269.57	9580143.23		403300.67	9581782.38		3.783252070		44.129135813			3	46	59.7075		44	7	44.8889	
O67	201	372252	1071697.35	9578963.68		404730.98	9580617.34		3.793803837	S	44.142005693	E		3	47	37.6938	S	44	8	31.2205	E
O68	204	377808	1075980.69	9575425.01		409021.85	9577122.51		3.825455575	S	44.180616700	E		3	49	31.6401	S	44	10	50.2201	E
O69	207	383364	1080264.03	9571886.35		413312.62	9573628.19		3.857101575	S	44.219229774	E		3	51	25.5657	S	44	13	9.2272	E
O70	210	388920	1084547.37	9568347.69		417603.29	9570134.37		3.888741883	S	44.257844933	E		3	53	19.4708	S	44	15	28.2418	E
O71	213	394476	1088830.71	9564809.03		421893.86	9566641.04		3.920376457	S	44.296462192	E		3	55	13.3552	S	44	17	47.2639	E
O72	216	400032	1093114.05	9561270.37		426184.34	9563148.21		3.952005253	S	44.335081569	E		3	57	7.2189	S	44	20	6.2936	E
O73	219	405588	1097397.40	9557731.71		430474.72	9559655.87		3.983628228	S	44.373703172	E		3	59	1.0616	S	44	22	25.3314	E
O74	222	411144	1101680.74	9554193.05		434764.99	9556164.03		4.015245340	S	44.412326837	E		4	0	54.8832	S	44	24	44.3766	E
O75	225	416700	1105964.08	9550654.38		439055.16	9552672.68		4.046856636	S	44.450952673	E		4	2	48.6839	S	44	27	3.4296	E
O76	228	422256	1110247.42	9547115.72		443345.24	9549181.83		4.078461892	S	44.489580694	E		4	4	42.4628	S	44	29	22.4905	E
O77	231	427812	1114530.76	9543577.06		447635.21	9545691.48		4.110061155	S	44.528210919	E		4	6	36.2202	S	44	31	41.5593	E
O78	234	433368	1118814.10	9540038.40		451925.09	9542201.63		4.141654382	S	44.566843364	E		4	8	29.9558	S	44	34	0.6361	E
O79	237	438924	1123097.44	9536499.74		456214.86	9538712.27		4.173241531	S	44.605478047	E		4	10	23.6695	S	44	36	19.7210	E
O80	240	444480	1127380.78	9532961.08		460504.54	9535223.41		4.204822558	S	44.644114984	E		4	12	17.3612	S	44	38	38.8139	E
O81	243	450036	1131664.12	9529422.41		464794.11	9531735.03		4.236397510	S	44.682754193	E		4	14	11.0310	S	44	40	57.9151	E
O82	246	455592	1135947.46	9525883.75		469083.59	9528247.16		4.267966165	S	44.721395690	E		4	16	4.6782	S	44	43	17.0245	E
O83	249	461148	1140230.81	9522345.09		473372.98	9524759.78		4.299528568	S	44.760039581	E		4	17	58.3028	S	44	45	36.1425	E
O84	252	466704	1144514.15	9518806.43		477662.26	9521272.90		4.331084679	S	44.798685705	E		4	19	51.9048	S	44	47	55.2685	E
O85	255	472260	1148797.49	9515267.77		481951.44	9517786.52		4.362634453	S	44.837334168	E		4	21	45.4840	S	44	50	14.4030	E
O86	258	477816	1153080.83	9511729.11		486240.52	9514300.63		4.394177848	S	44.875984986	E		4	23	39.0403	S	44	52	33.5460	E
O87	261	483372	1157364.17	9508190.45		490529.50	9510815.23		4.425714820	S	44.914638177	E		4	25	32.5734	S	44	54	52.6974	E
O88	264	488928	1161647.51	9504651.78		494818.38	9507330.33		4.457245418	S	44.953293758	E		4	27	26.0835	S	44	57	11.8575	E
O89	267	494484	1165930.85	9501113.12		499107.16	9503845.92		4.488769417	S	44.991951744	E		4	29	19.5699	S	44	59	31.0263	E
O90	270	500040	1170214.19	9497574.46		503395.84	9500362.02		4.520286866	S	45.030612153	E		4	31	13.0327	S	45	1	50.2037	E
O91	273	505596	1174497.53	9494035.80		507684.42	9496878.60		4.551797721	S	45.069275001	E		4	33	6.4718	S	45	4	9.3900	E
O92	276	511152	1178780.88	9490497.14		511972.92	9493395.69		4.583301938	S	45.107940395	E		4	34	59.8870	S	45	6	28.5854	E
O93	279	516708	1183064.22	9486958.48		516261.30	9489913.27		4.614799477	S	45.146608173	E		4	36	53.2781	S	45	8	47.7894	E
O94	282	522264	1187347.56	9483419.81		520549.59	9486431.33		4.646290384	S	45.185278441	E		4	38	46.6454	S	45	11	7.0024	E
O95	285	527820	1191630.90	9479881.15		524837.77	9482949.90		4.677774435	S	45.223951214	E		4	40	39.9880	S	45	13	26.2244	E
O96	288	533376	1195914.24	9476342.49		529125.86	9479468.96		4.709251679	S	45.262626510	E		4	42	33.3060	S	45	15	45.4554	E
O97	291	538932	1200197.58	9472803.83		533413.85	9475988.52		4.740722072	S	45.301304345	E		4	44	26.5995	S	45	18	4.6956	E
O98	294	544488	1204480.92	9469265.17		537701.73	9472508.57		4.772185573	S	45.339984737	E		4	46	19.8681	S	45	20	23.9451	E

O99	297	550044	1208764.26	9465726.51		541989.52	9469029.12		4.803642137	S	45.378667701	E		4	48	13.1117	S	45	22	43.2037	E
O100	300	555600	1213047.60	9462187.84		546277.21	9465550.15		4.835091812	S	45.417353255	E		4	50	6.3305	S	45	25	2.4717	E
O101	303	561156	1217330.94	9458649.18		550564.80	9462071.69		4.866534375	S	45.456041413	E		4	51	59.5238	S	45	27	21.7491	E
O102	306	566712	1221614.29	9455110.52		554852.30	9458593.72		4.897969874	S	45.494732283	E		4	53	52.6915	S	45	29	41.0362	E
O103	309	572268	1225897.63	9451571.86		559139.69	9455116.25		4.929398266	S	45.533425703	E		4	55	45.8338	S	45	32	0.3325	E
O104	312	577824	1230180.97	9448033.20		563426.99	9451639.27		4.960819509	S	45.572121777	E		4	57	38.9502	S	45	34	19.6384	E
O105	315	583380	1234464.31	9444494.54		567714.18	9448162.78		4.992233560	S	45.610820522	E		4	59	32.0408	S	45	36	38.9539	E
O106	318	588936	1238747.65	9440955.88		572001.27	9444686.79		5.023640375	S	45.649521955	E		5	1	25.1054	S	45	38	58.2790	E
O107	321	594492	1243030.99	9437417.21		576288.27	9441211.29		5.055040003	S	45.688226094	E		5	3	18.1440	S	45	41	17.6139	E
O108	324	600048	1247314.33	9433878.55		580575.16	9437736.29		5.086432221	S	45.726932952	E		5	5	11.1560	S	45	43	36.9586	E
O109	327	605604	1251597.67	9430339.89		584861.96	9434261.78		5.117817077	S	45.765642546	E		5	7	4.1415	S	45	45	56.3132	E
O110	330	611160	1255881.01	9426801.23		589148.66	9430787.76		5.149194526	S	45.804354894	E		5	8	57.1003	S	45	48	15.6776	E
O111	333	616716	1260164.35	9423262.57		593435.26	9427314.25		5.180564528	S	45.843070011	E		5	10	50.0323	S	45	50	35.0520	E
O112	336	622272	1264447.70	9419723.91		597721.77	9423841.22		5.211927038	S	45.881788004	E		5	12	42.9373	S	45	52	54.4368	E
O113	339	627828	1268731.04	9416185.24		602008.17	9420368.68		5.243282106	S	45.920508710	E		5	14	35.8156	S	45	55	13.8314	E
O114	342	633384	1273014.38	9412646.58		606294.47	9416896.64		5.274629509	S	45.959232232	E		5	16	28.6662	S	45	57	33.2360	E
O115	345	638940	1277297.72	9409107.92		610580.67	9413425.10		5.305969293	S	45.997958589	E		5	18	21.4895	S	45	59	52.6509	E
O116	348	644496	1281581.06	9405569.26		614866.77	9409954.05		5.337301416	S	46.036687797	E		5	20	14.2851	S	46	2	12.0761	E
CS	**350**	**648200**	**1284436.62**	**9403210.15**		**617724.12**	**9407640.29**		**5.358185252**	**S**	**46.062508860**	**E**		**5**	**21**	**29.4669**	**S**	**46**	**3**	**45.0319**	**E**