Soroti OR19-11 Test Site – Atmospheric Corrosivity

Site OR19-11

Soroti Test Site (Image by Geosun).

Background:

Soroti is a city located about 150 km to the north of Lake Victoria in Uganda and roughly 885 km from the ocean [1]. It has an estimated (2012) population of 61 000 people and houses an airport (Soroti Airport) that lies near 3.5 km (by road) from the city's central business [2]. The city's altitude is about 1 130 m above sea level [2], and the climate classified per the Köppen-Geiger system as Aw (Tropical savanna) [3] [4], with the main economic activity being agriculture [5]. Soroti Region, as a whole, houses about 2.5 million people [5].

The corrosion monitoring test site is positioned towards the north-eastern side of the city. The average yearly temperature for the site is 23.7 ± 1.4ºC, fluctuating between 20.3ºC and 28.0ºC, and the mean yearly humidity level, near 87.0 ± 11.4%. The annual precipitation level is approximately 1275 mm, occurring through the year, with the wettest months being March to November and the driest spanning from December to February [3]. The average wind speed at the site is about 1.8 ± 0.3 m/s, with gusts of up to 3.3 m/s, in a predominant southerly direction.

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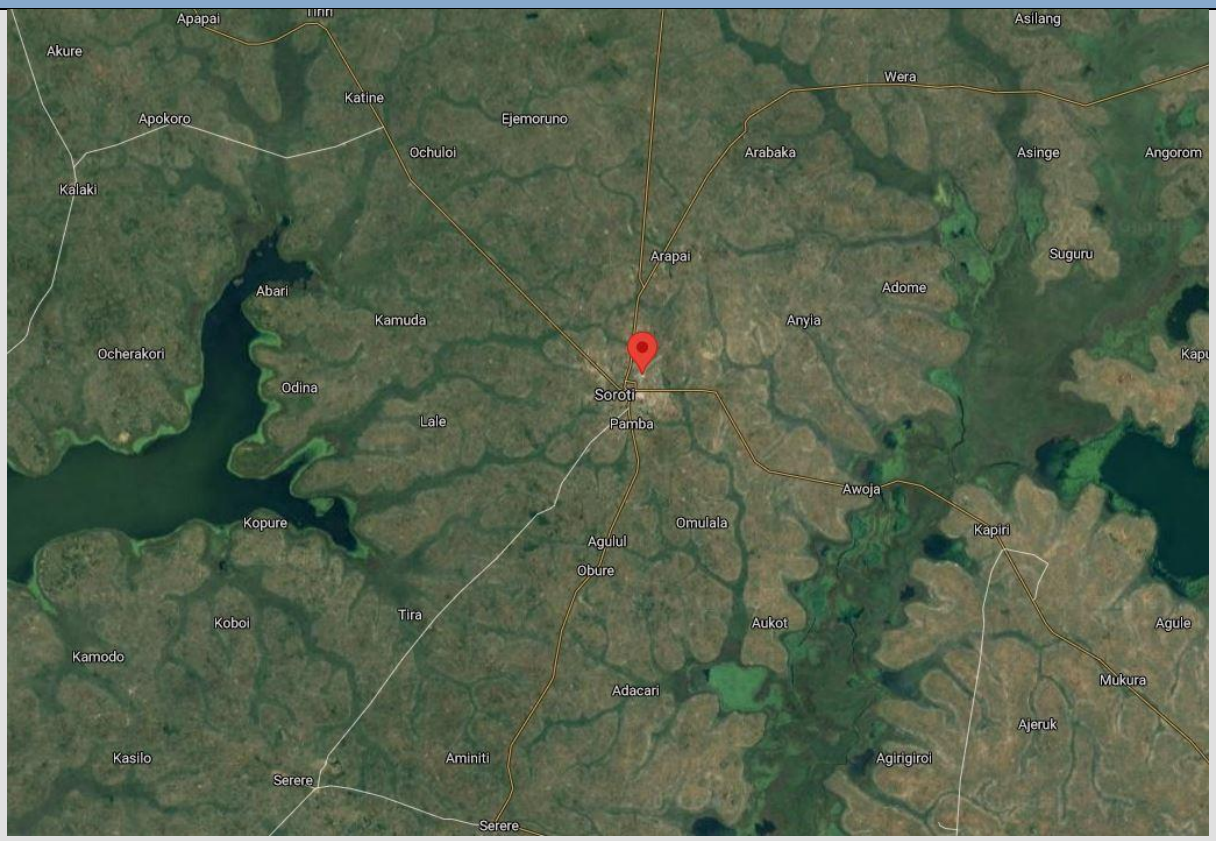

Google Inc Map of the Soroti Region in Uganda.

GPS Coordinates of Site:	1°43'26.4"N 33°37'12.0"E	**Elevation above Sea Level (m):**	1128 m	**Distance from Ocean (km):**	~883 km

ISO 9226 Corrosion Rates and ISO 9223 Corrosivity Classification	
12-month R_{CORR} Mild steel (µm/yr)	3.2 ± 0.3 µm/yr
12-month R_{CORR} Aluminium (µm/yr)	<0.1 µm/yr (Negligible)
12-month R_{CORR} Hot Dip Galvanised Steel (µm/yr)	0.7 ± 0.1 µm/yr
12-month R_{CORR} Copper (µm/yr)	0.5 ± 0.1 µm/yr
ISO 9223 Corrosivity Classification	Low (C2)
Typical surface contaminants	<testing still in progress>

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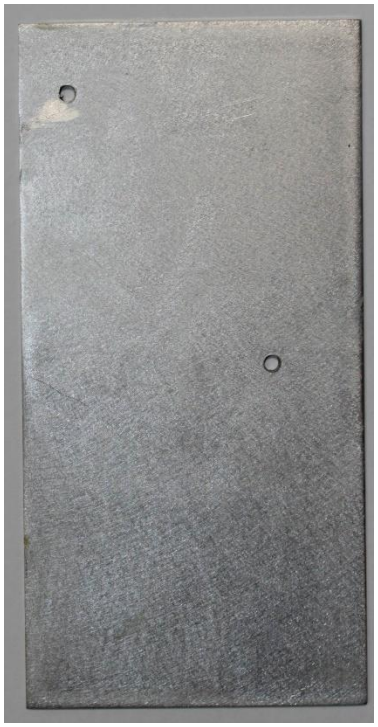
Mild steel – 12 months

Mild steel – 12 months



Aluminium – 12 months

Aluminium – 12 months

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HDG – 12 months

HDG – 12 months

Copper – 12 months

Copper – 12 months

Works Cited

[1] Google Inc, "Google Maps," 29 April 2021. [Online]. Available: https://www.google.co.za/maps/place/1%C2%B043'26.4%22N+33%C2%B037'12.0%22E/@1.6835288,33.5167188,62187m/data=!3m1!1e3!4m5!3m4!1s0x0:0x0!8m2!3d1.724!4d33.62. [Accessed 29 April 2021].

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[5] Wikipedia, "Soroti District," 21 March 2021. [Online]. Available: https://en.wikipedia.org/wiki/Soroti_District. [Accessed 29 April 2021].