

Wadelai OR19-13 Test Site – Atmospheric Corrosivity

Site OR19-13

Installation: 20-01-2020



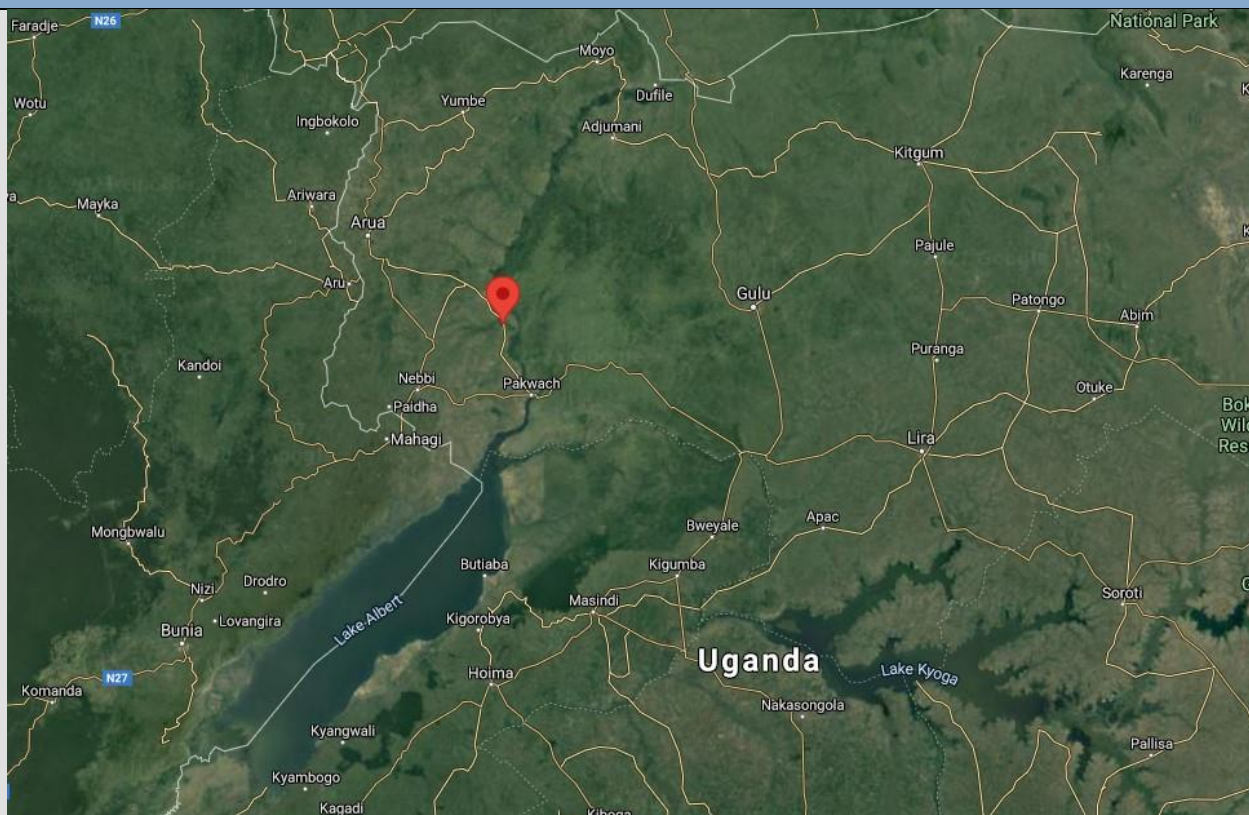
Wadelai Test Site (Image by Geosun).

Background:

Wadelai is a fishing village [1] situated in East-Central Africa in the north-northwestern region of Uganda, north of Lake Albert [2], on the White/Albert Nile [3]. The region's climate is classified per the Köppen-Geiger system as Aw (Tropical savanna), with agriculture and fishing being the main economic activities. The warmest period during the year is December to March; however, hot temperatures may be experienced throughout the year [4].

The corrosion monitoring test site is positioned west of the White Nile, near the Ora River [2]. The average yearly temperature at the site, as measured during January 2020-January 2021, is $24.9 \pm 1.5^{\circ}\text{C}$, fluctuating between 20.9°C and 29.7°C , and the mean yearly humidity level, near $92.8 \pm 7.2\%$. In 2020-2021, the precipitation level measured ~ 1076 mm, with the driest period being December-February. The average wind speed at the site for the same period was 0.7 ± 0.3 m/s, with a maximum of 1.8 m/s, in a predominant southerly direction.

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Google Inc Map of the Wadelai area in Uganda.

GPS Coordinates of Site:	2°43'33.6"N 31°23'24.0"E	Elevation above Sea Level (m):	646 m	Distance from Ocean (km):	~883 km
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ISO 9226 Corrosion Rates and ISO 9223 Corrosivity Classification

12-month R_{CORR} Mild steel (µm/yr)	4.7 ± 0.2 µm/yr
12-month R_{CORR} Aluminium (µm/yr)	<0.1 µm/yr (Negligible)
12-month R_{CORR} Hot Dip Galvanised Steel (µm/yr)	0.6 ± 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>

Orytech (Pty) Ltd.

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Mild steel – 12 months



Mild steel – 12 months



Aluminium – 12 months



Aluminium – 12 months

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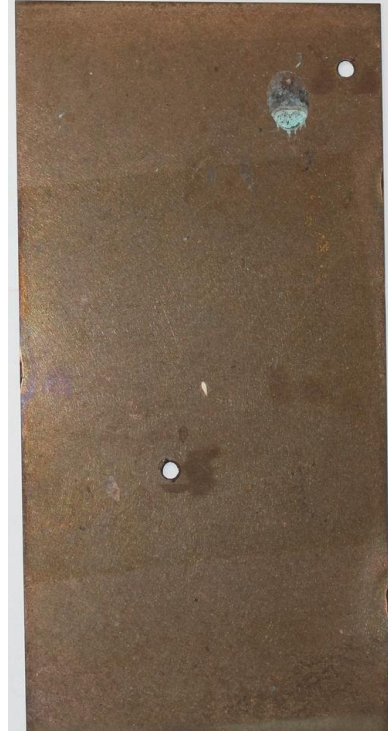
HDG – 12 months



HDG – 12 months



Copper – 12 months



Copper – 12 months

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Works Cited

- [1] Wikitravel, "Fort Wadelai," 22 December 2009. [Online]. Available: https://wikitravel.org/en/Fort_Wadelai. [Accessed 29 April 2021].
- [2] Google Inc, "Google Maps," [Online]. Available: <https://www.google.co.za/maps/place/2%C2%B043'33.6%22N+31%C2%B023'24.0%22E/@2.2831861,31.1955415,418189m/data=!3m1!1e3!4m5!3m4!1s0x0:0x0!8m2!3d2.726!4d31.39>. [Accessed 29 April 2021].
- [3] Wikipedia, "Wadelai," 16 April 2021. [Online]. Available: <https://en.wikipedia.org/wiki/Wadelai>. [Accessed 28 April 2021].
- [4] Best Time to Visit, "Best time to visit, weather and climate Wadelai," 2021. [Online]. Available: <https://www.besttimetovisit.co.za/uganda/wadelai-3796903/>. [Accessed 29 April 2021].
- [5] Wikipedia, "Köppen climate classification," 18 April 2021. [Online]. Available: https://en.wikipedia.org/wiki/K%C3%B6ppen_climate_classification. [Accessed 29 April 2021].