

National Report of Egypt to the 18th Session of the IOC Group of Experts on the Global Sea Level Observing System (GLOSS)

March 2025

Introduction:

Egypt is located at the north-east of Africa, connecting Africa to Asia. Egypt is also connecting the Mediterranean Sea with the Red Sea through Suez Canal, which makes it affecting the hydrodynamic flows in Both the Mediterranean Sea and Red Sea at this Region.

Knowing the Sea level around the Egyptian region (Mediterranean and Red Sea connection) is Essential for many studies, research and hydrodynamic modelling applications in the Mediterranean Sea and Red Sea. Sea levels at the Egyptian Region vary due to Mediterranean and Red Seas Basins Shape, oceanographic and other factors on a temporal scale ranging from days to decades.

The Egyptian Sea Level network:

Tide stations in Egypt are scattered around the country (Fig. 1 & Table 1). And they are operated by several national and local governmental organizations, including National Institute of Oceanography and Fisheries (NIOF), Suez Canal Authority and several Harbors and ports. Some of these stations are sending the data online to serves and for the older ones, their data are continuously being collected. And most of the data is being stored by NIOF.

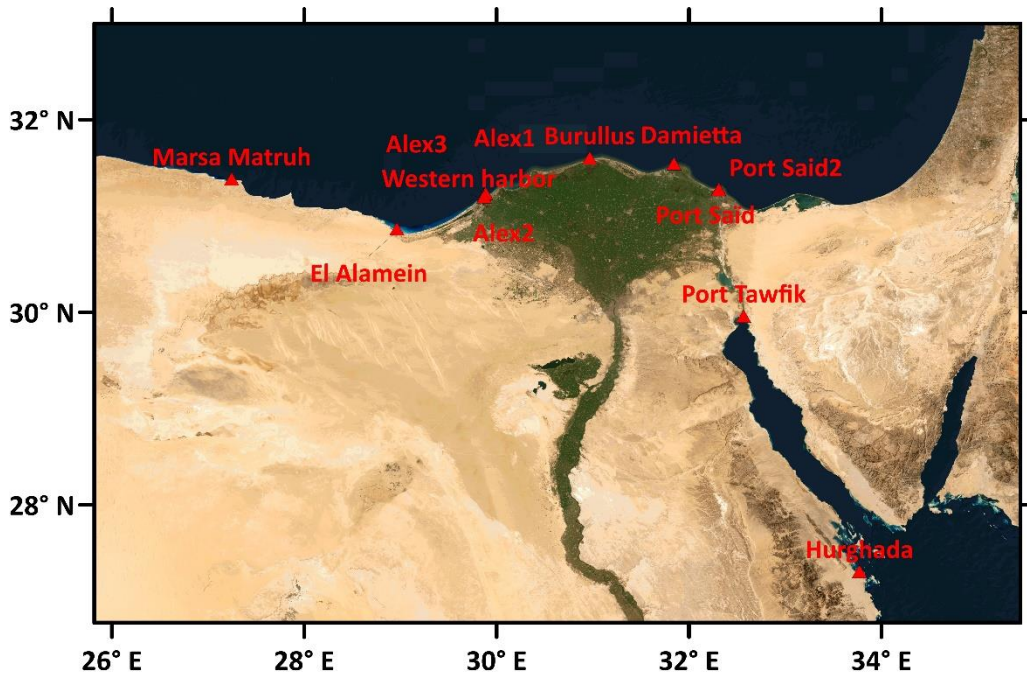


Figure 1: Locations of tide stations in Egypt.

Table 1: Tide stations

| Station | Longitude | Latitude | Starting date | Local Operator | Sensor Type |
|----------------|-----------|----------|---------------|----------------------|--------------------|
| Alex1 | 29.885 | 31.212 | 2009 | NIOF - GLOSS | Radar |
| Alex2 | 29.885 | 31.212 | 2018 | NIOF - IDSL | Radar |
| Alex3 | 29.885 | 31.212 | 2023 | NIOF - ATGs | Radar |
| Port Saïd | 32.309 | 31.258 | Near Future | NIOF - ATGs | Radar |
| Marsa Matruh | 27.246 | 31.362 | Near Future | NIOF - ATGs | Radar |
| Hurghada | 29.871 | 31.176 | Near Future | NIOF - ATGs | Radar |
| Western harbor | 32.307 | 31.250 | 1943 | Western harbor | hydraulic pressure |
| Port Saïd2 | 32.568 | 29.939 | 1923 | Suez Canal Authority | hydraulic pressure |
| Port Tawfik | 28.964 | 30.842 | 1920 | Port Tawfik - GLOSS | Radar |
| El Alamein | 33.773 | 27.284 | 2025 | ECCADP | hydraulic pressure |
| Damietta | 31.843 | 31.522 | 2024 | ECCADP | Radar |
| Burullus | 30.967 | 31.581 | 2024 | ECCADP | Radar |

Case experience: Stations at Alexandria (Alex1,2 &3)

Alexandria station (NIOF – Branch) has a long history of tide gauges; Alex1 (GLOSS-349) started 2009, Alex2 (IDSL-23) started 2018 and finally Alex3 (ATGs) which started 2023.

We experienced several cases at these stations:

- A unit from a device going faulty. (due to environmental difficulties or expired unit)
- A full device damage.

So, it was a very good decision to acquire a backup system in many events.

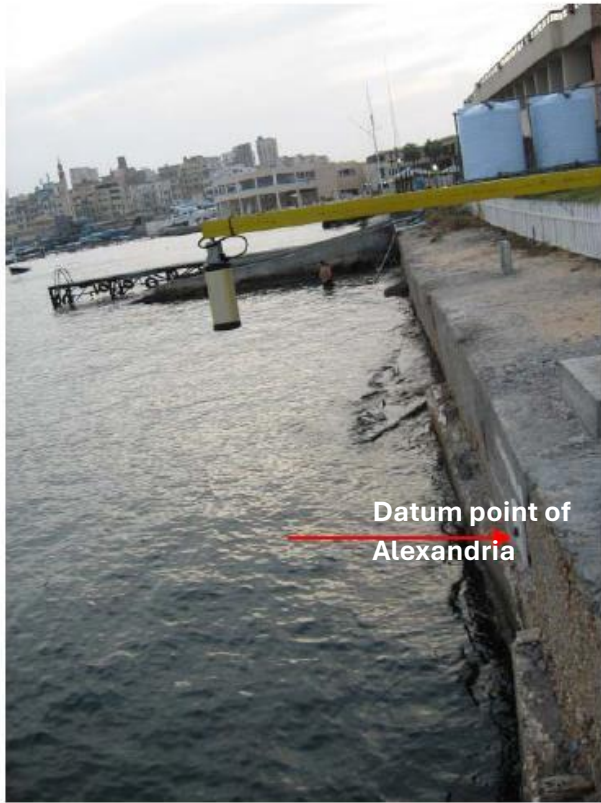


Figure 2: Station Alex1 (GLOSS 349).



Figure 3: Station Alex2 (IDSL-23).



Figure 4: Station Alex3 (ATG)

Other stations:

Due to the lifetime of any device or the harsh environment at the coastal area, it is always best to continuously increase the tide stations around the country if an opportunity has arrived. So, we currently adding tidal stations around the country occasionally. As shown in the previous table (Table 1). And the figures (4,5 and 6) show our newest stations.



Figure 5: Station El Alamein



Figure 6: Stations Damietta and Burullus