

# Tropical Atlantic Surface Salinity

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Ships-of-opportunity have been used to gather surface data in the tropical Atlantic: Berrit (1961, 1962) surveyed the West African coast in 1957-58 with ships-of-opportunity. In 1977 ORSTOM initiated a continuous survey of the surface waters in the Atlantic from Le Havre. The routes for gathering the surface data for MESTRA (Mesures des Salinités et des Températures sur les Routes Atlantiques) Figure 1a) originate in Le Havre and sail to the Gulf of Mexico (1 ship), West Indies (3 ships), west coast of South America (3 ships), French Guyana (1 ship), east coast of South America (3 ships) and South Africa (5 ships). This program was sponsored by ORSTOM and Meteorologie Nationale.

Surface samples were gathered every 6 hours concurrently with meteorological observations. From July to October 1977 a large spreading of the low-salinity water was located in the intertropical zone (Figure 1b). This water was desalted in the Intertropical Convergence Zone along the African coast and in the Caribbean by the rainy season, and by the Amazon River's annual floods. In addition, precipitation from tropical cyclones in August through December reduces the salinity of surface waters, and saline water originating in the northern hemisphere spreads southward to 10°N.

In December and January the southward extension of the low-salinity water decreased (Figure 1c), and the saline water originating in the southern hemisphere reached 10°N along the South American coast. The saline water originating in the northern hemisphere withdrew northward to 15°N. Low-salinity waters

were found at about 5°N off the African coast due to freshwater input from the coastal rivers. In the west, the Amazon discharge is minimal and in the West Indies the rainfall is also minimal.

## References

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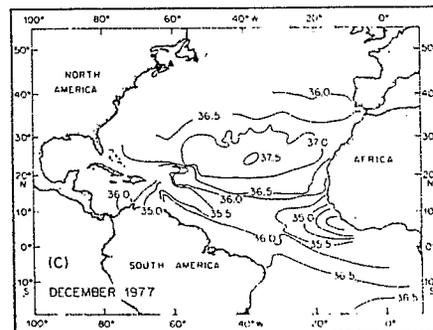
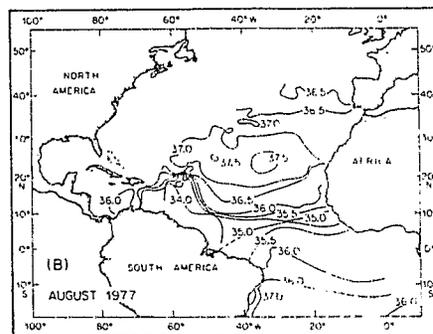
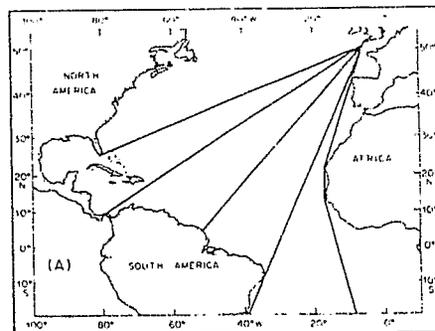


FIGURE 1 (Donguy et al.)

1A) Routes of the ships-of-opportunity gathering surface observations in the Atlantic Ocean from Le Havre. 1B) Surface salinity per mil August 1977. 1C) Surface salinity per mil December 1977.

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