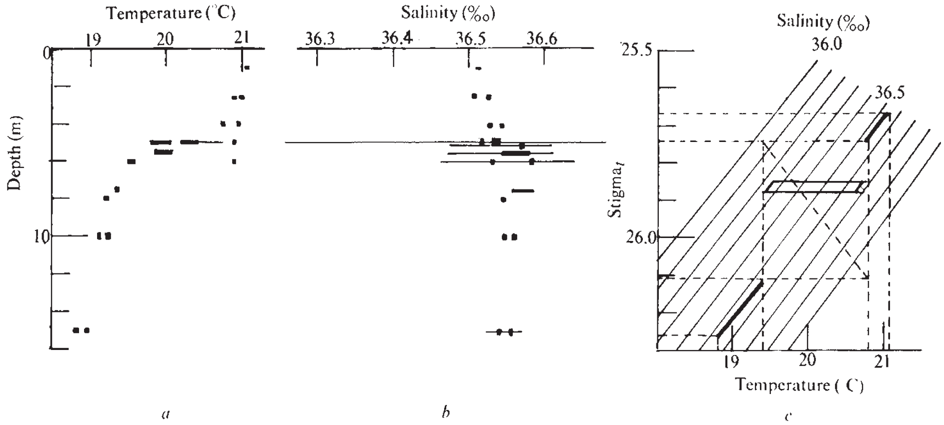

Fig. 4 Temperature (*a*), salinity (*b*) and sigma *t* values (*c*) for the top 15 m of the sea at a fixed station off Tema, Ghana, from 1740 h to 1840 h on August 10, 1970.

in a large density change (25.7 to 26.1 sigma) and within this narrow band there is a considerable range of salinities (Fig. 4*b*). Low salinity bottom water will be held back at the density gap if it is too cold to rise through it. Similarly, high salinity surface water will be trapped if it is too hot to sink. This situation is shown diagrammatically in Fig. 4*c* where the open horizontal bar represents the thermocline water. The lower thick line represents the bottom water and the upper thick line represents the surface water. Several similar thermocline effects have been summarized in a recent review on turbulence[9].

The nightly "smoothing out" of the daily heat budget is a well known phenomenon[10]. The thermocline appears to sink so that at dawn the temperature distribution is as uniform as that of the salinity (Fig. 3). This uniformity ensures that there is no stratification of density gradient in the upper layer of the sea before the morning evaporation begins. This is one of the conditions which must be fulfilled before the thermohaline convection can occur. The others are a calm sea with no currents and a high evaporation rate. The meteorological and sea temperature records for Ghana were analysed for the years 1963 to 1969 and it was found that the meteorological factors which lead to these conditions correlate with past records of upwellings[6].

The interplay of meteorological and oceanographical factors causing the local upwellings can be summarized as follows. Upwellings occur after cloudy weather during the latter half of the period of minimum solar radiation. These factors reduce stored heat. At the equator these periods occur twice yearly at the solstices. In Ghana more cloudy weather occurs at the June solstice and the principal upwelling period is from July to August. A sunny day with little wind is necessary for a calm sea and a high evaporation rate and upwellings occur on days such as these. Rainfall forms a low salinity, insulating layer which delays upwellings. Continuous sunny periods with strong winds and heavy seas increase stored heat, produce salinity gradients and prevent upwellings.

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Corrigendum

We wish to present a correction to the article "Rocket Observations and the Cosmic X-ray Background"[1]. This concluded that a minimum number density of 32 sources/sq. degree of equal apparent brightness could produce the fluctuations, to 95% confidence. We now revise that figure to 12 sources/sq. degree, because of an arithmetical error pointed out by D. Schwartz (private communication) and an error in the field of view. The maximum percentage fluctuation in 36 square degrees is 5%, again to 95% confidence.

We note that the most probable number density of sources for the above model is 50/square degree or 2×10^6 in the whole sky.

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