Seawater is….. salt!

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'Broken rainbow', photographed on my request by J. Dijkema in 1981, at about 800 km SE of Japan (Copyright G.P. Können).

The segment of the rainbow above the horizon emerges from rain drops; its extension below the horizon from seawater drops. The rainbow shows a kink or better a discontinuity: the radius of its subhorizon segment is 0.8° smaller. Apparently the refraction index of sea water drops is slightly larger than fresh water. With some geophysical intuition a detached open-air observer may conclude that sea water very likely consists of ***salt*** water.

The above conclusion will probably not make it to the headlines: there exist more straight forward methods to establish that sea water is salt – for instance by taking a big drink of it. For planets other than the Earth it is different. In 1974 the American scientist James Hansen together with the Dutch astronomer Joop Hovenier have carried out an analysis of the polarization of the light of Venus, in which a prominent rainbow peak appears. They concluded that the sizes Venus cloud drops are of the order of microns and that the drops are sour rather than salt: they consist very likely of concentrated sulfuric acid. This conclusion is later beautifully confirmed by *in sito* measurements of space probes.

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