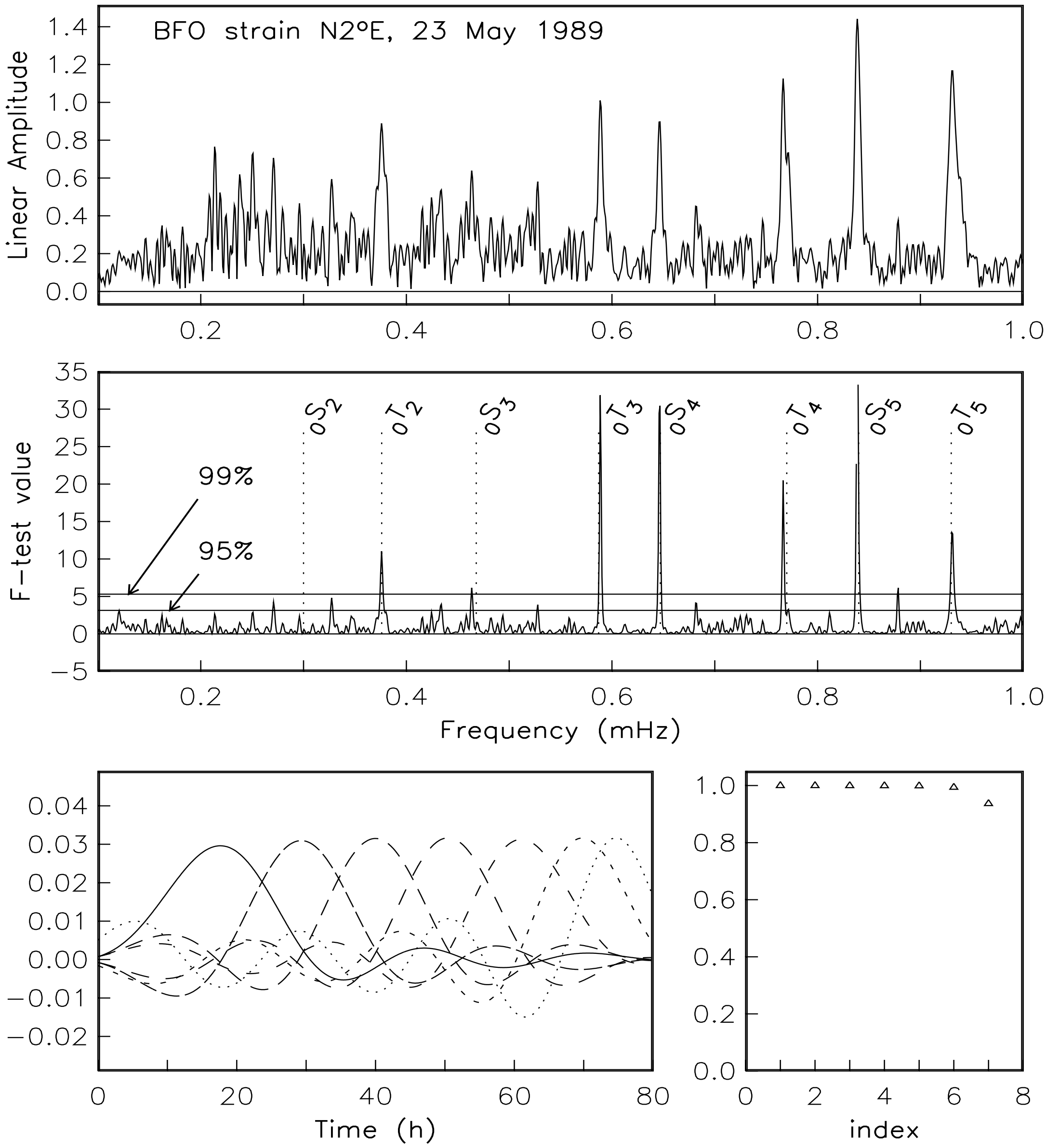


**Figure 2** Multitaper spectral analysis of the BFO strain meter record of the Macquarie rise earthquake. The multitapers are optimized for the detection of $_0T_2$. The top panel shows the estimated amplitude spectrum with $_0T_2$, $_0T_3$, $_0S_4$, $_0T_4$ and $_0S_5$ forming the largest spectral peaks in the mode band. Mode splitting due to rotation is not visible due to the short record length. The middle panel shows the results of the variance ratio $F$-test. The test fails to detect only $_0S_2$. All other fundamental modes have $F$-test values exceeding the 99% level. The $F$-test peak for $_0S_5$ is clipped and reaches 65. The bottom left panel shows the seven lowest order eigentapers which were used (design parameters: $\Omega = 8\pi/N, \nu = 0.01$). The tapers sample all parts of the record because the amplitude of $_0T_2$ is predicted to decay by only 18% over an 80 hour period. The bandwidth retention factors for the first seven eigentapers are shown in the last panel.