This is a real radar echo example to validate ECTD. The data consist of the radar echoes from three reflectors floating on the water, as shown in Fig I.
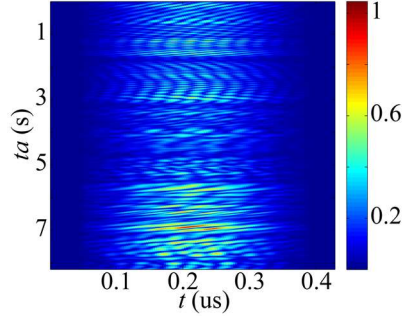

Fig I. Radar echo.

The ECTD is applied to analyze this data, and the results are shown in Fig. II. Fig. II (a) is the points corresponding to the peaks of the distribution with amplitude greater than -10 dB. Fig. II (b) is the projection of ECTD onto t_a-f_a plane. From the two subfigures, the three curves corresponding to the three targets' echoes can be clearly observed, representing their respective FIF and SIF. Fig. II (c) and (d) show cross-sections of ECTD at two different moments, and it can be seen that there are no cross-term interference between the peaks corresponding to the three targets. These experimental results verify the effectiveness of the ECTD in analyzing real radar data.
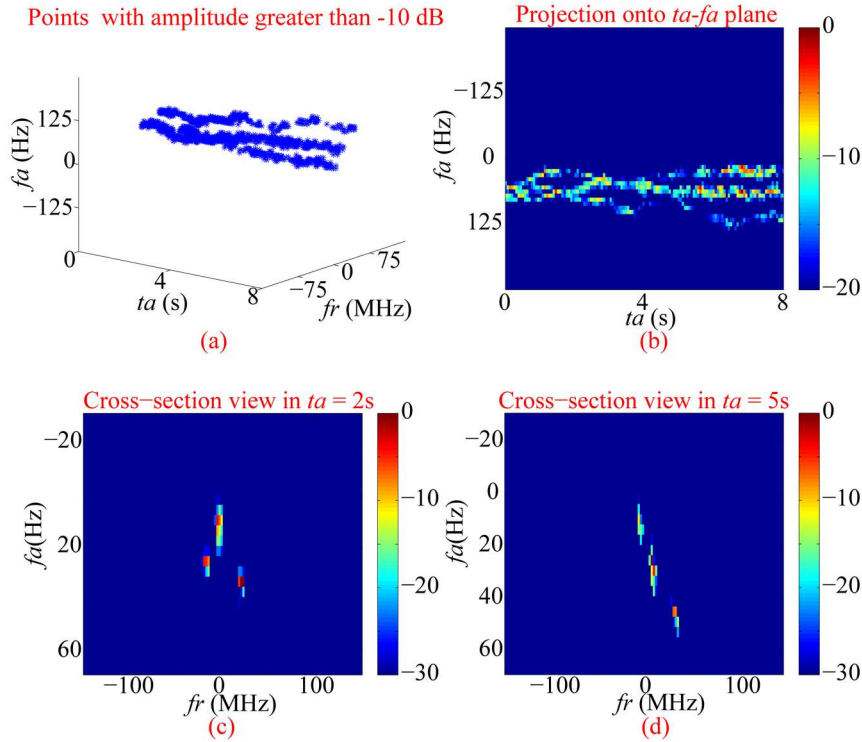

Fig II. Results of the real radar echo experiment. (a) Points corresponding to the peaks of ECTD with amplitude greater than -10 dB. (b) Projection of ECTD onto t_a-f_a plane. (c) Cross-section views of ECTD in ta = 2s. (d) Cross-section views of ECTD in ta = 5s.