A brief description of the radar waves from the satellite Topex/Poseidon

This dataset is a part of the original ones supplied by Frédéric Frappart and a deep description can be found in Frappart (2003). This datset is not included in the NPFDA book.

Here, we consider only $n = 472$ radar waveforms. The data were registered by the satellite Topex/Poseidon around an area of 25 kilometers upon the Amazon River. Each data is represented by its wave (i.e. curve) on the range $(0, 70)$, and the satellite is registering 10 curves each second. We observe their discretized version namely, for $i = 1, \ldots, 472$, $\boldsymbol{x}_i = (\chi_i(t_1), \ldots, \chi_i(t_{70}))$. Note that each wave is linked with the kind of ground treated by the satellite, and the idea for the Amazonian basin is to use these waveforms for altimetric and hydrological purpose. The satellite dataset "npfda-sat.dat" contains the $\boldsymbol{x}_i$'s and is organized as follows:

	Col 1	$\cdots$	Col j	$\cdots$	Col 70
Row 1	$\chi_1(t_1)$	$\cdots$	$\chi_1(t_j)$	$\cdots$	$\chi_1(t_{70})$
$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$
Row i	$\chi_i(t_1)$	$\cdots$	$\chi_i(t_j)$	$\cdots$	$\chi_i(t_{70})$
$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$
Row 472	$\chi_{472}(t_1)$	$\cdots$	$\chi_{472}(t_j)$	$\cdots$	$\chi_{472}(t_{70})$

Frappart, F. (2003). *Catalogue des formes d'onde de l'altimètre Topex/Poséidon sur le bassin amazonien.* Technical Report, CNES, Toulouse, France.