

NOTATIONS

English Symbols

H	Wave height
d	Water depth
k	Wave number
M	Earthquake moment of magnitude
L	Water wavelength
d_a	Antenna aperture length
g	Acceleration due to gravity
h	Ocean wave height
H	Satellite altitude above the earth surface
f_c	Signal carrier frequency
f_D	Doppler frequency shift
f_R	Doppler frequency rate
f_{DC}	Doppler centroid frequency
k	Wave number
r_{ap}	Azimuth resolution
r_r	Range resolution
r_g	Ground resolution
R	Slant-range
R_g	Across track location of target
R_b	Broad-side range of the target
$s(t)$	Instantaneous chirp signal
S	Incidence radar energy plane
$S_I(k_0)$	Intensity variance- spectra
s	SAR integration time (slow time)
t	Pulse duration
Δt	Time difference
T_k^{tilt}	Tilt modulation function

T_k^{hydr}	Hydrodynamic modulation function
T_k^{rb}	Velocity bunching modulation function
$T(k_0)$	Modulation transfer function
u_x	Orbital velocity in the horizontal direction
u_z	Orbital velocity in perpendicular direction
u_r	Resultant orbital velocity in the direction of propagation
a_x	Orbital acceleration in the horizontal direction
a_z	Orbital acceleration in perpendicular direction
a_r	Resultant orbital acceleration in the direction of propagation
c	Celerity of ocean waves
c_{deep}	Celerity in deep water
c_{inter}	Celerity in intermediate water
$c_{shallow}$	Celerity in shallow water
$a_b(t)$	Average of band b
$s_b(t)$	Standard deviation
$v_b(t)$	Velocity deviation
$D(t)$	Velocity deviation function
Δv_b	Change over velocity deviation
$C(t)$	Correlation function
$q(t)$	Tsunami signal detection factor
V_s	SAR platform velocity
w	Scatterer element velocity

Greek Symbols

α	Depth of fracture
β	Angle of strike
λ	Dip angle
λ_B	Ocean surface wavelength
λ_r	Radar wavelength
θ	Incidence angle

θ_a	Along-track angular position of target
λ_r	Radar wavelength
λ_B	Bragg wavelength
ω	Angular frequency of the ocean wave
φ	Wave potential function
Δ	Azimuth shift
χ	Permeability of sea surface
ζ	Wave propagation direction (with respect to radar range)
η	Sea surface elevation
π	Pi
$\zeta(k_0)$	Wave height-variance spectra
σ	Scattered energy
σ^0	Normalized radar cross section