Table 1. Notation used in Chapter 1

$C(r)$	Covariance as a function of scalar distance, r
$f(\mathbf{x})$	Atmospheric noise
$\mathbf{x}$	Map view position
$S(r)$	Structure function
σ^2	Variance of atmospheric noise
$\mathbf{A}$	Autocorrelation of noise
$\mathbf{S}$	Empirical structure function matrix
C_d	Empirical noise covariance matrix
L_c	Logarithmic decay scale of noise
n_n	Uncorrelated noise
n_c	Correlated noise
v, d	Eigenvectors and eigenvalues of C_d
a_i	Boxcar functions describing resampled data
n_i	Number of points averaged by a_i
D_i	Resampled data
G	Design matrix of Green's functions
m	Fault slip model
G^{-g}	Generalized inverse
N	Data resolution matrix, GG^{-g}
Q	Cholesky factorization of C_d
P	Inverse of Q

Table 2. Notation used in Chapter 2

$\Delta \mathrm{L}_{wm}$	Change in line length between GPS stations Wahomie and Mile
$B_\perp$	Perpendicular baseline between two SAR images
H_a	Ambiguity height for a given $B_\perp$
V_p	P-wave velocity

Table 3. Notation used in Chapter 4

G	Design matrix
$\Omega(x, y, z)$	Fault plane coordinates
$\Phi(x, y)$	Observation coordinates
m	Slip distribution
d	Data observations
C_d	Data covariance matrix
Γ	Objective function in minimization
λ	Weighting value
$f(\Omega, m)$	Penalty function
E_p	Error from penalty function
E_d	Error from data residual
p	SVD truncation for smoothing shape
σ^2	Variance of noise
D	Finite difference approx. of Laplacian smoothing matrix
S	Diagonal smoothing matrix
G^{-g}	Generalized inverse
W	Averaging width over fault plane
R	Model resolution matrix, $G^{-g}G$
N	Data resolution matrix, GG^{-g}
m_0	True slip distribution
d_0	Noise-free data
n_i	Data noise
d_i	Noisy data, $d_0 + n_i$
${}_0r_0$	Regularization error
${}_ir_j^n$	Perturbation error
${}_ir_j$	Total error $= {}_0r_0 + {}_i r_j^n$
${}_j\mathcal{R}_i$	Size of total error, "Jury" criterion
${}_j\mathcal{R}_i^t$	Theoretical ${}_j\mathcal{R}_i$
${}_j\mathcal{R}_i^a$	Approximate ${}_j\mathcal{R}_i$
${}_j\mathcal{R}_i^r$	Resampled ${}_j\mathcal{R}_i$
U_V	Observations of vertical deformation
U_H	Observations of horizontal deformation

Table 4. Notation used in Chapter 5

$B_\perp$	Perpendicular baseline between two SAR images
${}_j\mathcal{R}_i^t$	Theoretical ${}_j\mathcal{R}_i$
${}_j\mathcal{R}_i^a$	Approximate ${}_j\mathcal{R}_i$
${}_j\mathcal{R}_i^r$	Resampled ${}_j\mathcal{R}_i$
λ	Weighting value
p	SVD truncation for smoothing shape
D	Finite difference approx. of Laplacian smoothing matrix
S	Diagonal smoothing matrix
m	Slip distribution