Temporal decorrelation over vegetated areas is the main limitation for recovering interseismic deformation along the San Andreas Fault system. To assess the improved correlation properties of L-band with respect to C-band, we analyzed ALOS PALSAR interferograms over three vegetated areas in California and compared them with corresponding C-band interferograms from European Space Agency Remote Sensing Satellite (ERS). All the ALOS interferograms have proximately two year temporal baseline and less than 1 km spatial baseline, while all the ERS interferograms have similar temporal baseline and less than 0.2 km spatial baseline. (1) In the highly vegetated Northern California forests, ALOS remained remarkably well correlated over a two-year winter-to-winter interferogram (~0.27), while an ERS interferogram with a similar temporal and spatial baseline lost correlation (<0.13). (2) In central California near Parkfield, we found similar pattern. Four ALOS interferograms with a two-year temporal baseline all had high correlation (0.16-0.25) over vegetated mountain areas, while the ERS interferogram had much lower correlation (0.13-0.16). This improvement in correlation at L-band revealed creep along the San Andreas Fault that was not apparent at C-band. (3) In the Imperial Valley of Southern California, ALOS had higher correlation in the urban area (0.4 versus 0.3) and lightly irrigated area (0.18 versus 0.16) however had lower correlation over some sandy surfaces (0.2 versus 0.4). We also found that the correlation of same-mode interferograms, i.e. FBS-FBS and FBD-FBD, was
slightly better than that of mix-mode interferograms, i.e. FBD-FBS. These results suggested that ALOS remains correlated much longer than ERS. New L-band observation will be especially valuable for study the long-term slow motion, such as interseismic slip and fault creep, over vegetated areas in California.