

GANYMEDE: A NEW VIEW FROM GALILEO MISSION RESULTS

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Galileo Solid State Imaging results provide important new information about Ganymede. Dark terrain shows 1) very heterogeneous albedo patterns; 2) much more prominent and extensive ancient tectonic deformation than previously thought; 3) furrow morphology and topography consistent with impact origin; 4) resurfacing by impact crater ejecta, but little evidence for plains of volcanic origin; 5) palimpsest structure suggesting that the margin is the edge of the continuous ejecta deposit; 6) some dark terrain surfaces overlap in age with the oldest bright terrain. Bright terrain images provide evidence for 1) multiple wavelengths of deformation and ductile stretching at depth; 2) change in style from early graben to later domino-style tilt block faulting; 3) younger groove lanes tectonically resurfacing pre-existing groove polygons; 4) 'T-intersections' being due to tectonic crosscutting of older terrain by the top of the T, the reverse of what was previously thought; 5) some smooth terrain at Voyager resolution being old and degraded, not young; 6) domain structural trends displaying integrated regional patterns of deformation and some shear; 7) tectonic resurfacing being an important process; 8) crater central domes of diapir-like rather than volcanic origin. Regional tectonic syntheses show a systematic change in orientation of stress as a function of time and favor global models involving changes in the satellite's figure and global expansion due to differentiation.