Deformation openness and closedness of various classes of compact complex manifolds; examples

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Abstract. We review the relations between compact complex manifolds carrying various types of Hermitian metrics (Kähler, balanced, or *strongly Gauduchon*) and those satisfying topological properties such as the $\partial\bar{\partial}$-lemma, or the degeneration at E_1 of the Frölicher spectral sequence. We also review the behaviour of these properties under holomorphic deformations. The emphasis will be placed on the notion of *strongly Gauduchon* (sG) manifold that we introduced recently in the study of deformation limits of projective and Moishezon manifolds. Besides its expository aspect, the paper presents new results such as exhibiting various examples of sG and non-sG manifolds. These are then used to review and reinterpret from this new standpoint a range of constructions already known in the literature.