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Preservation of pre-collisional structures in the accreted Kohistan island arc in the Pakistani Himalaya.

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Arc-continent collision is an important crust-forming mechanism. Beside accretion of new material during collision, geochemical modifications are considered to be important in the "andesitic model" of crust formation. To understand the importance and nature of such collision-related modifications, it is essential to decipher the pre-collisional arc history. The best exposed paleo-island arc is probably the Kohistan (NE Pakistan). We present new field and geochronological data which necessitate reevaluation of the generally-accepted geodynamic evolution of the Kohistan paleoarc. It has been postulated that deformation structures have been registered in the oldest plutonic rocks of Kohistan. Based on this assumption, suturing between the Kohistan Arc and the Karakoram continental active margin, to the north, was inferred to have occurred between the age of deformed, stage 1 plutons and the age of undeformed, stage 2 plutons, i.e. between 104 and 85 Ma. With this interpretation, the stage 1 plutons would have intruded during the intra-oceanic development of the Kohistan arc. The stage 2 plutons would have intruded after the Karakoram-Kohistan collision, in the new Andean-type margin of Eurasia. In addition, geochronological data were documenting an apparent gaps in magmatic activity between 104 and 85 Ma and between 75 and 55 Ma. These gaps were interpreted as time-depending and iterative magmatic activity responding to alternating extension and compression in the Kohistan arc. Magmatic hiatuses would consistently reflect collision events around 104-85 Ma and 75-55 Ma. New data document that a) Kohistan magmatic activity was continuous from at least 104 Ma to 42 Ma; and b) some strongly deformed, supposedly stage 1 granitoids are younger (˜67 Ma) than "undeformed" 85 Ma old plutonic rocks. Penetrative deforma-

tion structures were postulated to have been acquired during the collision of Kohistan with Eurasia. Geochronological data do not support this important assumption. Detailed mapping and structural studies suggest instead that most deformation structures are diachronic and formed around intrusions. We conclude that the bulk deformational fabric of the arc is not related to arc-continent collisions.