

Article : Carbon trapping during contact metamorphism in volcanic basins: example of the Guaymas Basin

Journal : Contribution to Mineralogy and Petrology

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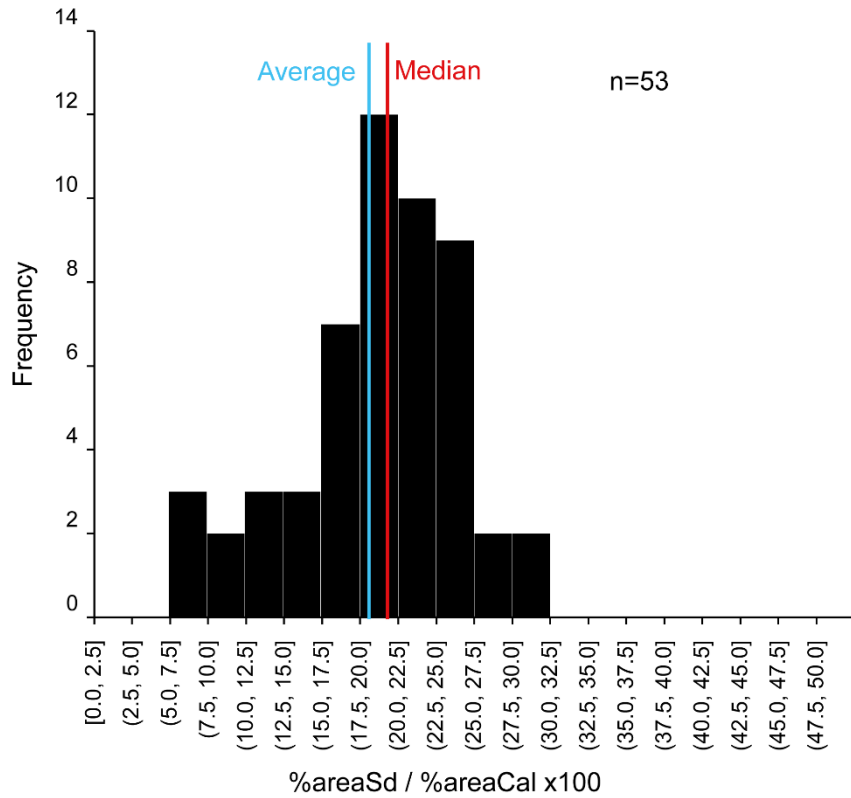
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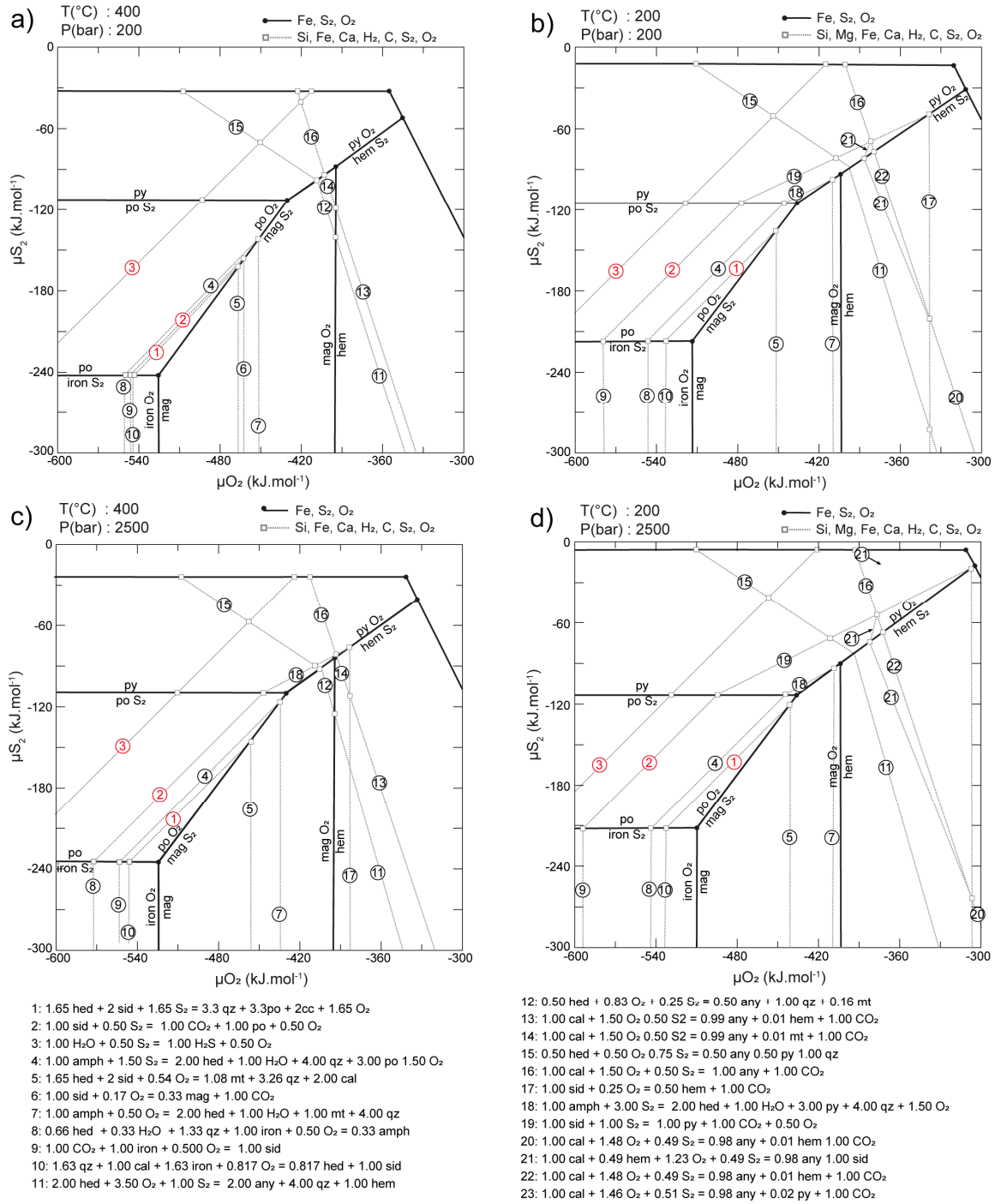
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Figure_SI1: Estimation of the proportion of siderite and calcite in carbonate patches. Image processing was performed using FIJI software on n=53 images taken by SEM under the same analytical conditions. The proportion of calcite and siderite was obtained by separating and analysing each image according to the difference in SEM contrast between the two carbonates. The proportion (without units) of each phase per image was obtained using FIJI software, and then the ratio %areaSd/%areaCalx100 was calculated to eliminate the difference in size between each carbonate patch. This gives us an average of 18.6% and a median of 19.6% siderite. For simplicity, we consider 20% of siderite in the carbonate patches.



Figure_SI2: Quantitative μS_2 - μO_2 projections calculated at 400°C (a-c) and 200°C at 200 bar. With all reactions, reaction equations are written with the high μS_2 assemblage to the right of the = sign. Solid lines correspond to univariant reactions in the subsystem Fe-S₂-O₂ system, whereas dashed lines are univariant reactions the system Si-Ca-Fe-H₂-C-S₂-O₂. Reaction (1) and (2) correspond to the reaction used in the text. Phase relation in these simplified systems show the reactions involving silicates, carbonates and sulphides in the presence of a fluid as a function of variations of μS_2 - μO_2 . (c-d) Same projection at 2500 bar, showing the same reactions for deeper basins. Projection at 600°C was not reproduced at high pressure because the mineralogical assemblage is not reproduced by the models.