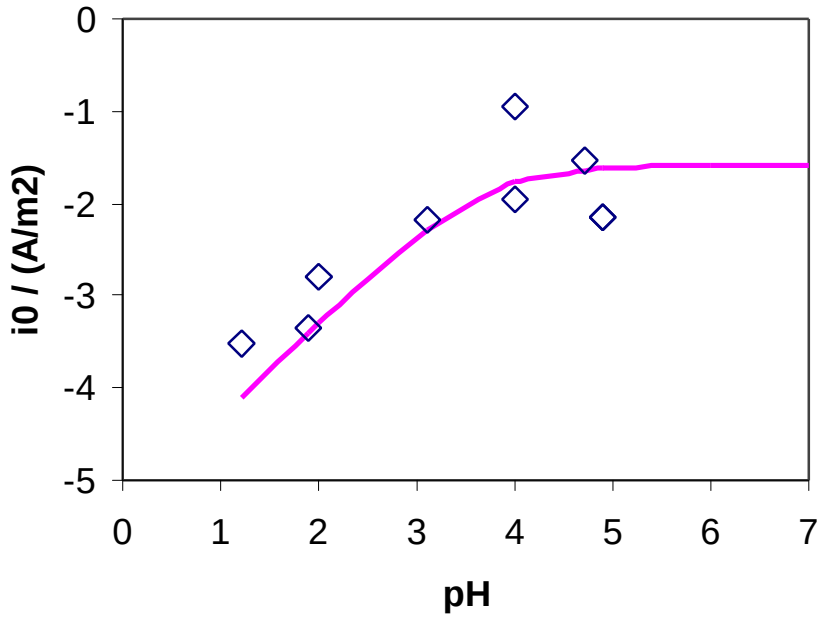

Figure 1. Representation of the exchange current density for iron dissolution at different pH values. The symbols denote the experimental data of Bockris et al.[29].

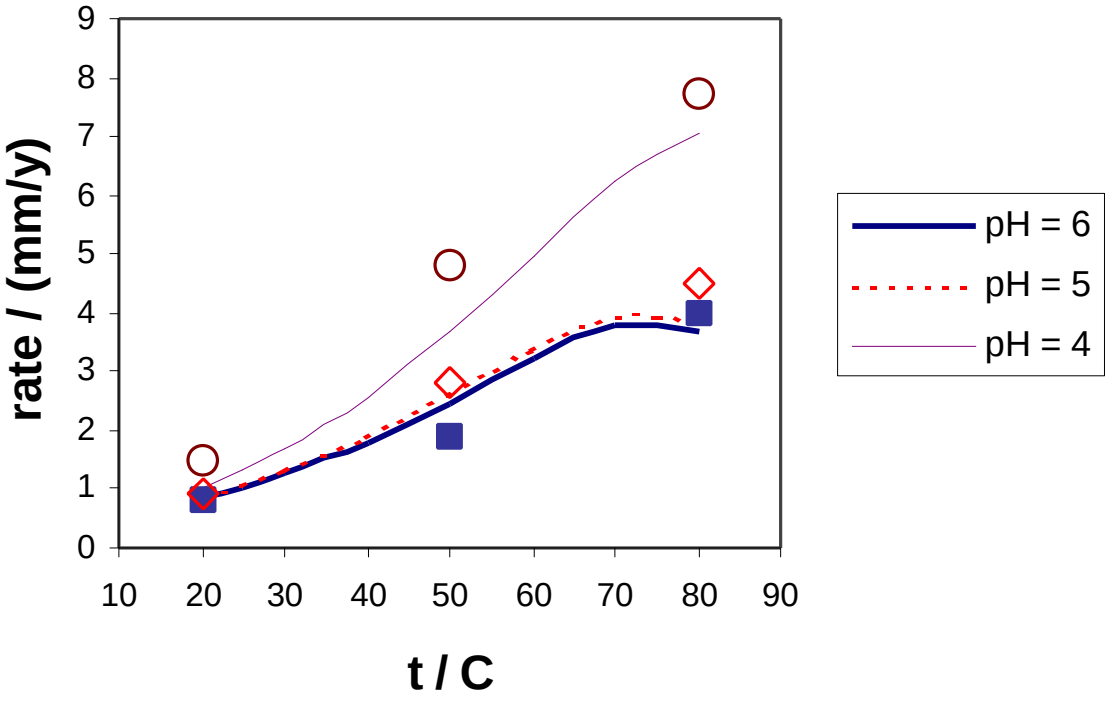

Figure 2. Corrosion rate for carbon steel in a 1 % NaCl solution in the presence of CO_2 at 1 bar under the conditions of pipe flow with a velocity of 2 m/s and pipe diameter of 1.5 cm. The lines have been obtained from the model and the symbols denote the data of Nesic et al.[12] for X-65 steel.

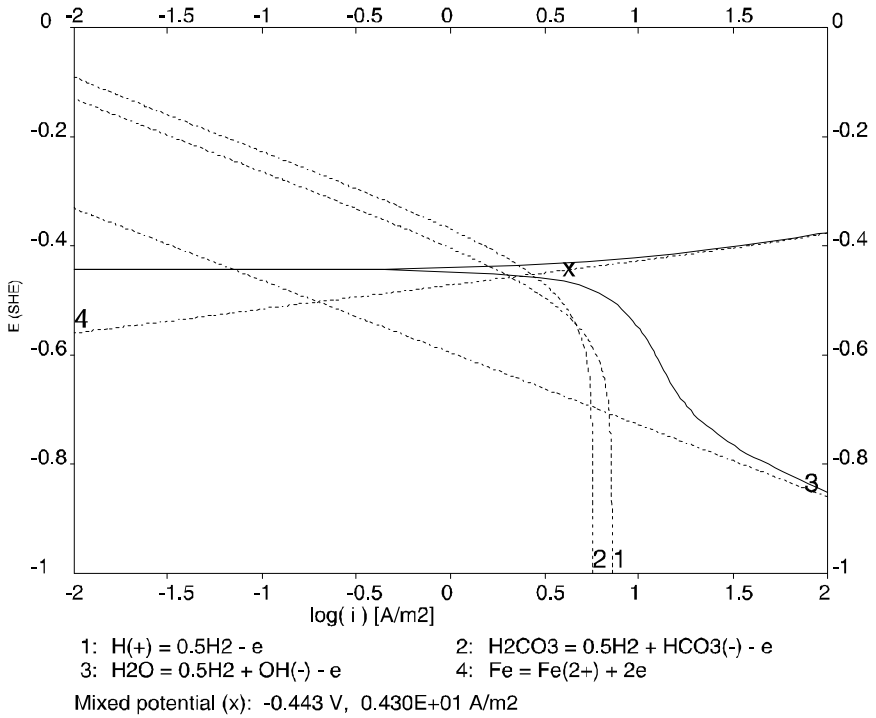

Figure 3. Predicted current density - potential relationship and partial cathodic and anodic processes for carbon steel in a 1 % NaCl solution in the presence of CO_2 at 1 bar and 60 °C under the conditions of pipe flow with a velocity of 2 m/s and pipe diameter of 1.5 cm. The natural pH of the system is 4.04.

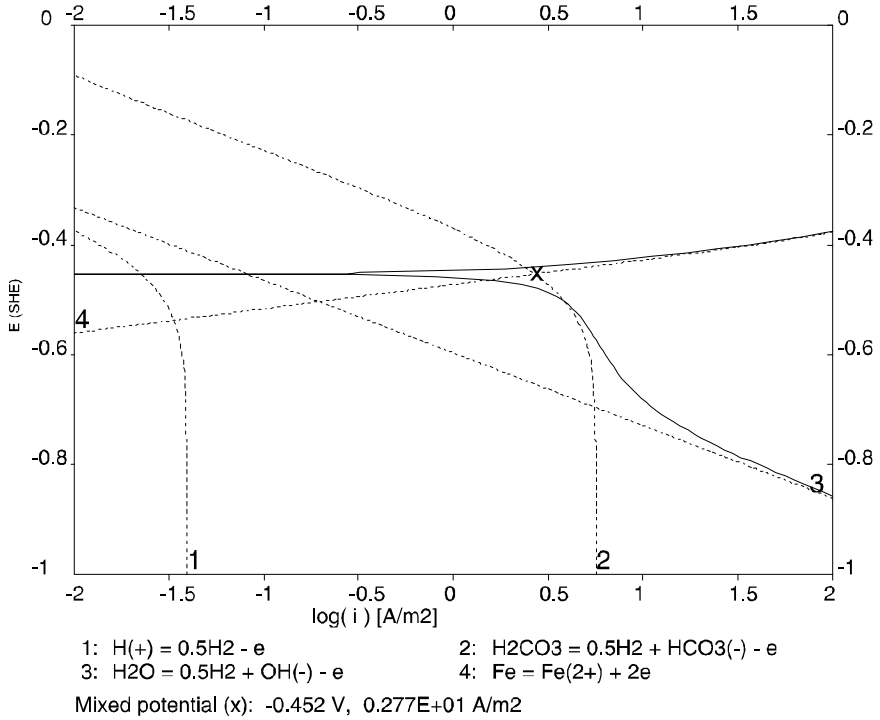

Figure 4. Predicted current density - potential relationship and partial cathodic and anodic processes for carbon steel in a 1 % NaCl solution in the presence of CO_2 at 1 bar and 60 °C under the conditions of pipe flow with a velocity of 2 m/s and pipe diameter of 1.5 cm. The pH of the system has been adjusted to 6 by adding NaOH.

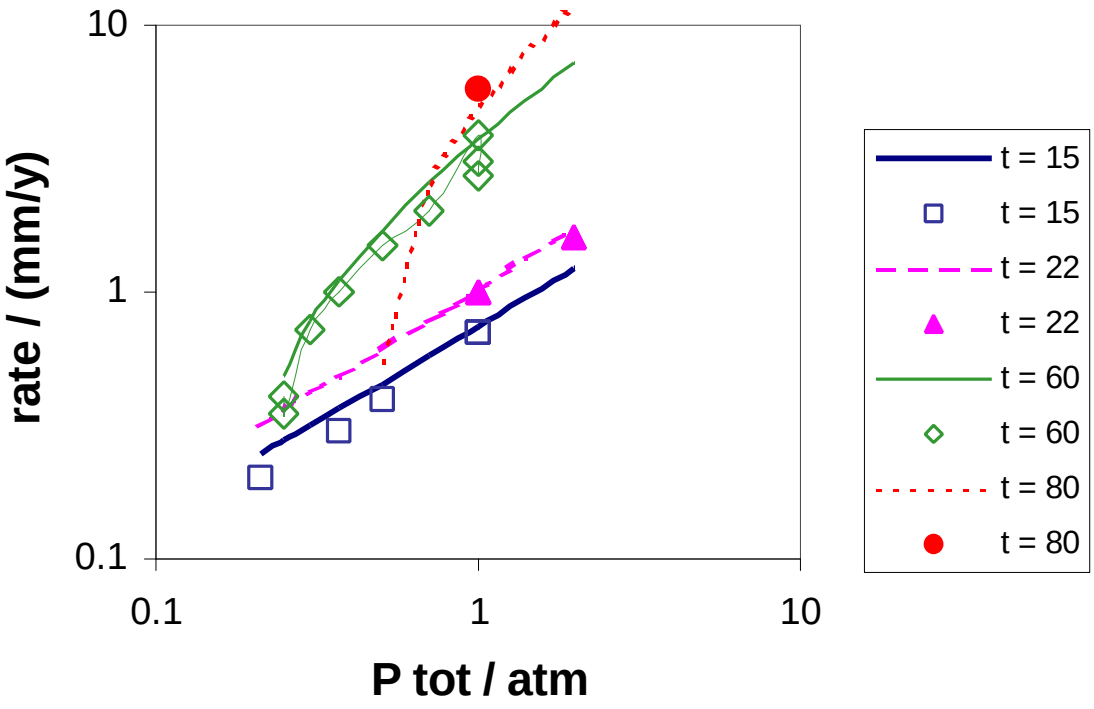

Figure 5. Corrosion rate as a function of total pressure for carbon steel in a 0.1 % NaCl solution in the presence of CO_2 at various temperatures. The lines have been obtained from the model and the symbols denote the data of de Waard and Milliams[1] for X-52 steel.

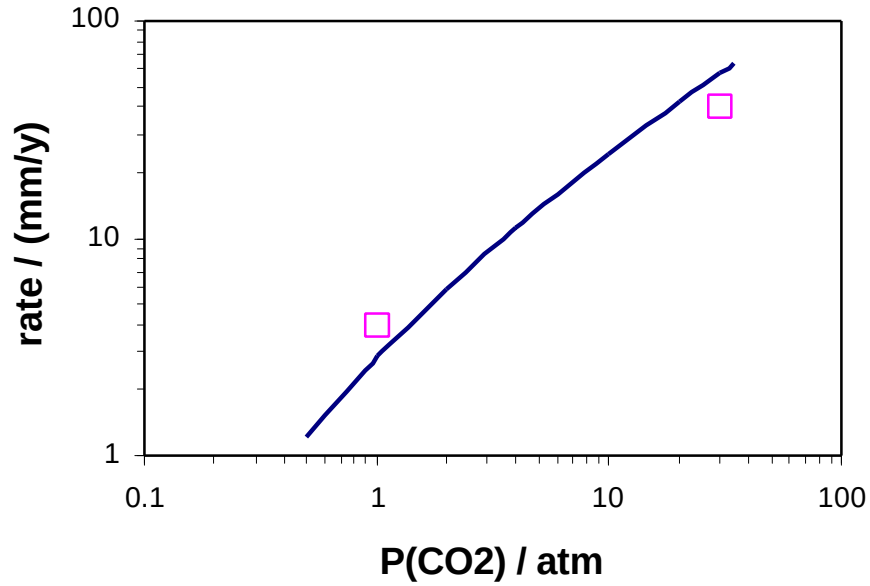

Figure 6. Corrosion rate as a function of pressure for carbon steel in synthetic seawater in the presence of CO_2 at 60 °C. The line has been obtained from the model and the symbols denote the data of Ikeda et al.[37]

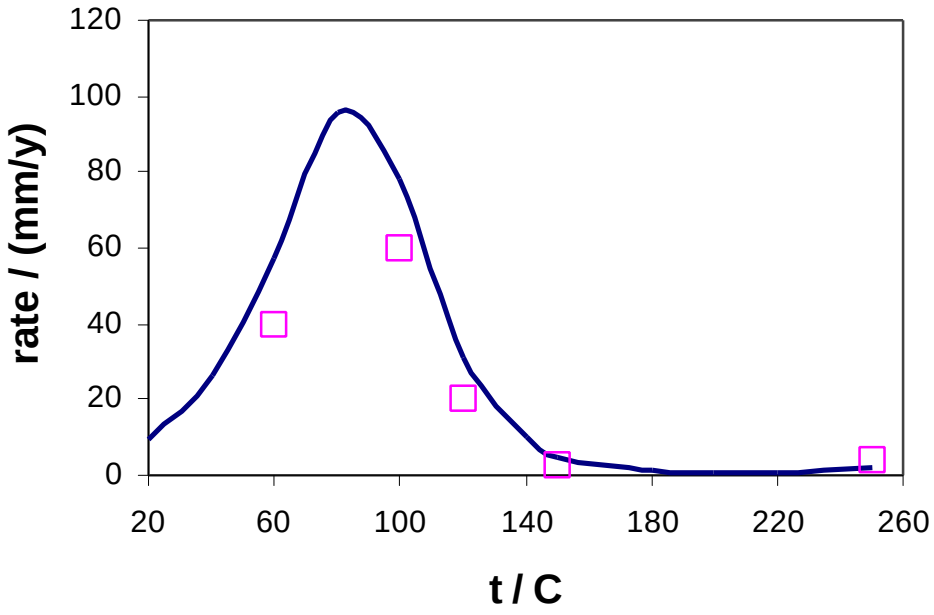

Figure 7. Corrosion rate as a function of temperature for carbon steel in synthetic seawater. The CO_2 pressure is 30 bar at room temperature. The line has been obtained from the model and the symbols denote the data of Ikeda et al.[37]

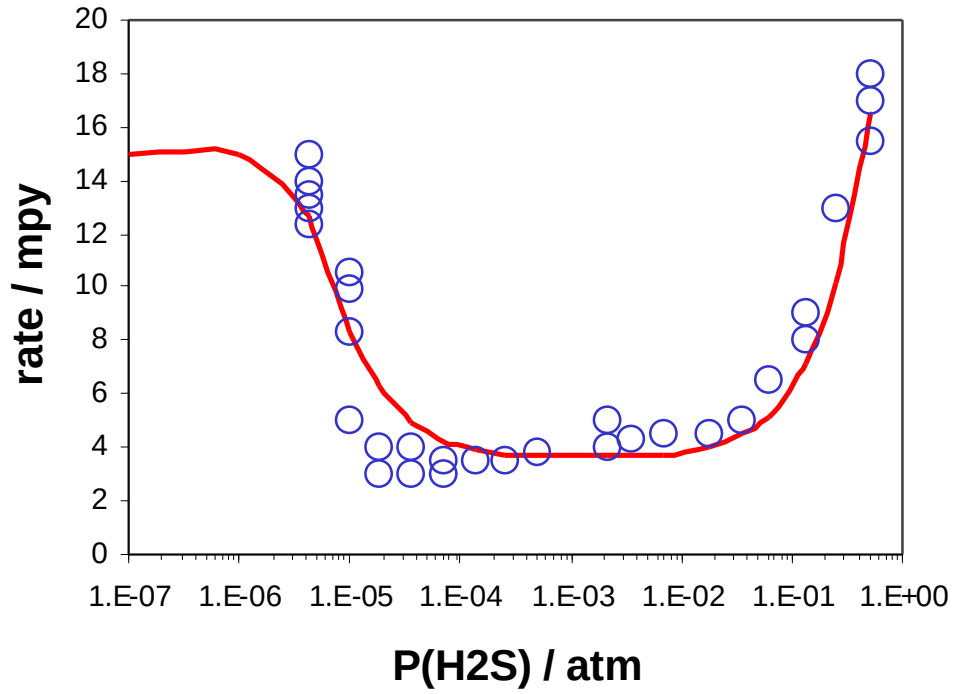

Figure 8. Corrosion rate as a function of H_2S partial pressure for Armco iron at 30°C. The total pressure (CO_2 and H_2S) is 1 atm. The line has been obtained from the model and the symbols denote the data of Greco and Wright.[17]

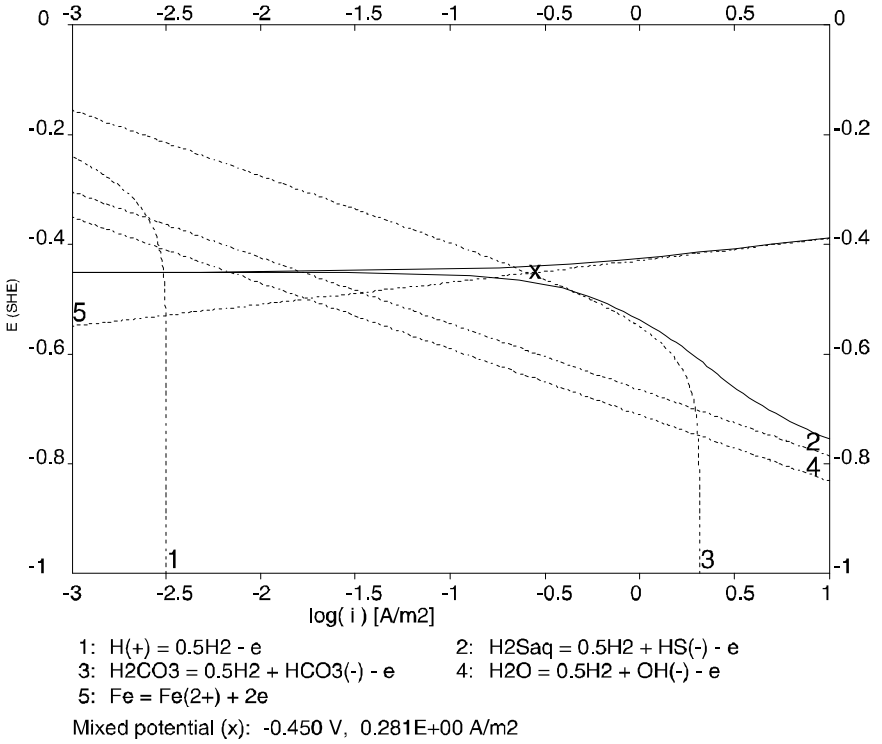

Figure 9. Predicted current density - potential relationship and partial cathodic and anodic processes for Fe in a CO_2+H_2S system at 30 °C under static conditions. The partial pressure of H_2S is 0.01 atm and the total pressure is 1 atm.

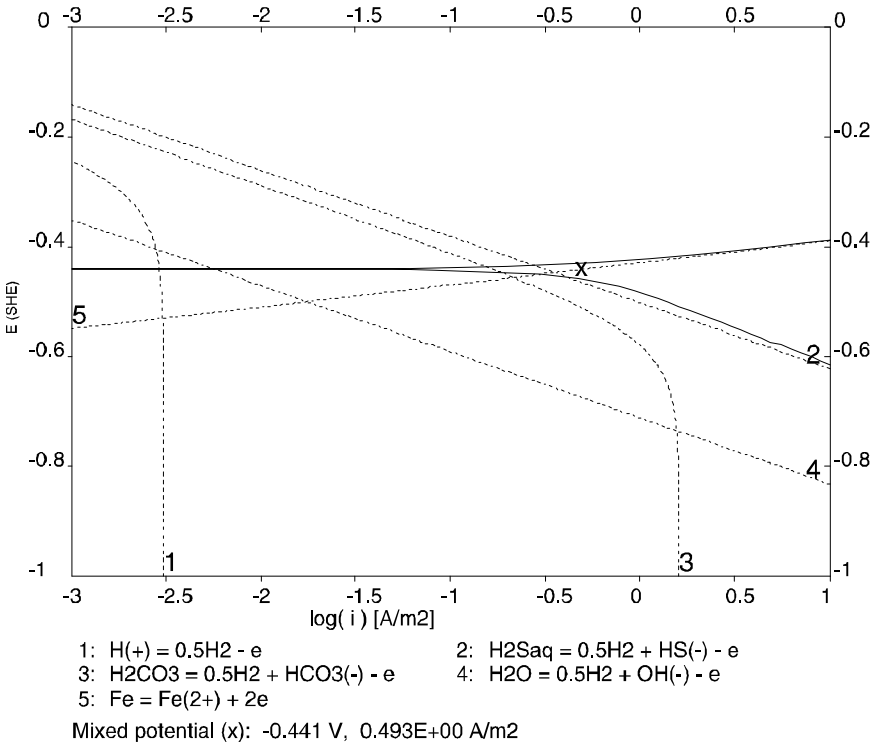

Figure 10. Predicted current density - potential relationship and partial cathodic and anodic processes for Fe in a CO_2+H_2S system at 30 °C under static conditions. The partial pressure of H_2S is 0.23 atm and the total pressure is 1 atm.