# Effects of the IMF disturbance on the magnetosheath

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Three-dimensional magnetohydrodynamic simulation study is carried out for the interaction of the solar wind with the bow shock when the interplanetary magnetic field is disturbed. It is seen that various forward and backward wave modes are generated in the downstream of the solar wind. Large fluctuations are formed behind the bow shock as a result of the superposition of these waves, which the waves propagate down with their own characteristic speeds. The density fluctuations are generally anti-correlated with the magnetic field intensity, representing the signature of the slow modes.