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THE EFFECT OF GLOBAL AIR TRANSPORTATION ON THE INVASION OF PANDEMICS

National boundaries never hindered infectious diseases to reach distant territories; however, the speed at which an infectious agent can now spread around the world is significantly increased in the last 50 years. We introduce an SEAIR-based model for large distance travel networks, which describes the dynamics of a pandemic on regions connected by air transportation. Due to the high connectedness of several distant places, we include the possibility of transmission of the disease during travel. We detail the method of the calculation of the reproduction number, and parametrize the model with influenza and real air traffic data.