

Beaufort Scale

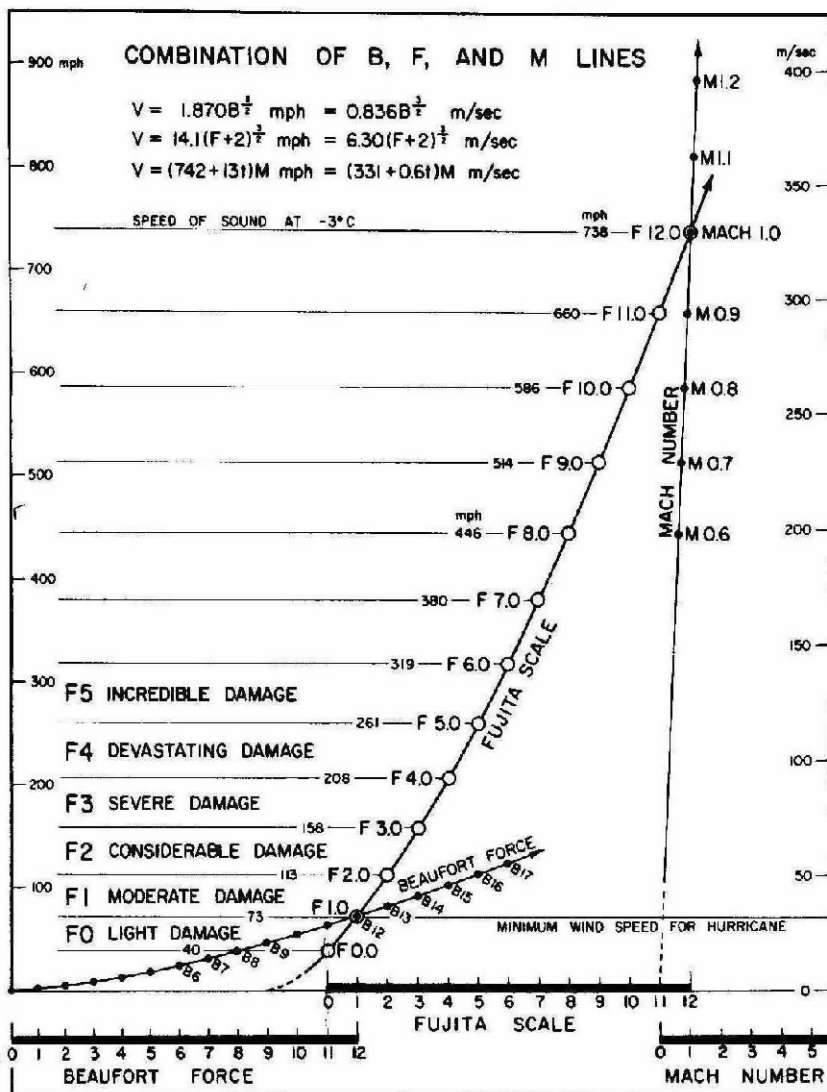


Fig. 1. Connection of Beaufort force, Fujita scale and Mach number. In deriving the equation for F-scale wind computation, the following considerations were made. (1) To connect Beaufort force 12 with Mach number 1 with a smooth curve, (2) To correspond B 12 with F 1 and M 1 with F 12, so that a 1 through 12 graduated scale, as in the case Beaufort force, covers the desired speed range. (3) Beaufort 0 indicates calm or no wind and Fujita 0 likewise denotes the wind speed causing no damage on most structures, (4) To give wider speed range as the speed increases because the faster the wind speed the wider the speed range to allow a visual distinction of damage from one scale to the next, and (5) An exponent $3/2$ is likely to serve the above purpose. Furthermore, the square of the speed or the kinetic energy is proportional to the cube of $F + 2$. About 20 formulas to satisfy partial or total conditions listed above were examined before adopting Eq (2), the final equation, which was used to obtain the F-scale curve presented in this figure.