Crater impact:

P = (pxrx/4r1)(1 + 3(rx/r1)1.3)

Overpressure P in Pascals, distance r1 in meters for a 1 kiloton surface blast

px = crossover pressure = 75000 Pa, rx = 290 m

Airburst Altitude:

Inside mach region (at far distances):

P = (pxrx/4r1)(1 + 3(rx/r1)1.3)

Overpressure P in Pascals, distance r1 in meters for a 1 kiloton blast

px = crossover pressure = 75000 Pa, rx = 289 + 0.65\*zb in meters, zb = airburst alt in m

Inside regular reflection region:

P = p0e-βr1

P0 = 3.14 \* 1011zb-2.6 zb airburst in meters

β = 34.87zb-1.73

Explosion scaling:

r1 = r/Ekt1/3

zb1 = zb / Ekt1/3

scaled distance to the mach region

rm1 = 550zb1/1.2(550 – zb)

zb1 == 0, rm1 == 0

zb1 == 550 meters, no mach region