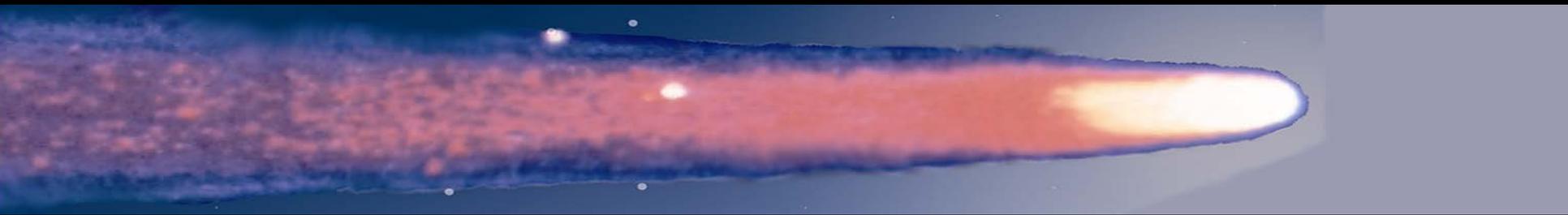


COMPONENTS OF IMPACT AIR BLASTS



- Shock waves are produced by objects moving faster than the speed of sound (i.e., Mach 1). Impacting NEA penetrate the atmosphere with a speed equal to or in excess of 11.2 km/s ($\geq 25,000$ mph or \geq Mach 35), producing a ballistic shock wave.
- A second, explosive shock wave, is produced when the object catastrophically fragments in the atmosphere or hits the surface to produce an impact crater
- The shock waves are accompanied by high-velocity air blasts