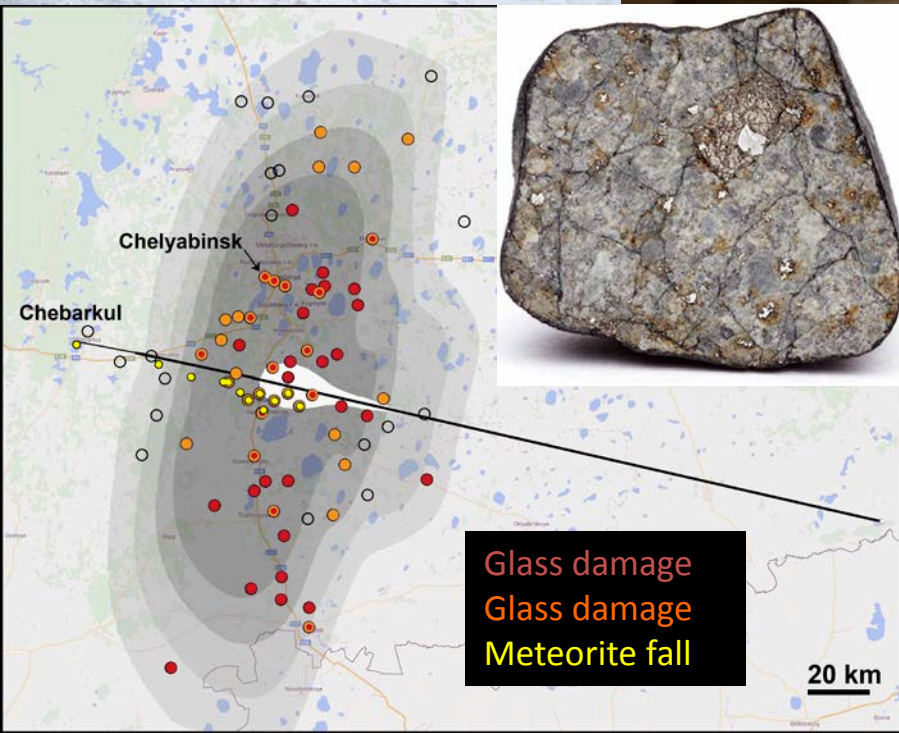


Chelyabinsk Super Bolide – Feb. 15, 2013



- 20 meter asteroid with impact energy of 400-600 kilotons of TNT explosives.
- Arrived unseen from direction of sun.
- Airburst at ~30 km altitude near Chelyabinsk Russia. Shock wave injured > 1600 people.
- Details of observed impact and properties of recovered meteorites are being used to calibrate computer-based impact simulations.
- Sparse large bolide data may suggest Earth impact rate of 15 – 30 m sized objects could be higher than previous estimates.
- NASA supported scientists involved in several areas of study (e.g. Peter Jenniskens & Derek Sears at Ames, Bill Cooke at Marshall, Mark Boslough at Sandia, Paul Chodas at JPL).