For use:
These simulations are provided free to use with proper reference.

Please reference the following papers for use:

science:
Ibáñez-Mejía, J. C., Mac Low, M.-M., Klessen, R. S., & Baczynski, C. 2017, ApJ, 850, 62
Chira, R.-A., Ibáñez-Mejía, J. C., Mac Low, M.-M., & Henning, Th. 2019, A&A, 630, A97

repository:
Chira, R.-A., Ibáñez-Mejía, J. C., Mac Low, M.-M., & Henning, Th. 2018, Digital repository of the American Museum of Natural History, doi: 10.5531/sd.astro.3

Flash code: Fryxell et al. 2000; Dubey et al. 2008

And the CATS release paper (Burkhart et al. 2020).

If you have questions, please email: Dr. Mordecai-Mark Mac Low at mordecai@amnh.org.

The simulations presented here were computed with the Eulerian, adaptive mesh refinement, magnetohydrodynamics (MHD) code FLASH (Fryxell et al. 2000, Dubey et al. 2008) version 4.2. The equations solved were those of compressible ideal gas dynamics and MHD including terms to model the diffuse heating and cooling of interstellar gas, supernova heating, and a static background potential representing the stars and dark matter of a galactic disk.

These are high-resolution zoom-in models of three individual clouds formed within supernova-driven turbulence driven in a 1 × 1 × 40 kpc section of a disk galaxy extending 20 kpc above and below the plane of the galaxy (Ibáñez-Mejía et al. 2017). The clouds were resolved as they collapsed, with successive levels of adaptive mesh refinement being used to resolve the Jeans length everywhere with a minimum of four cells (Ibáñez-Mejía et al. 2016). At the onset of self-gravity, these clouds have masses:

M3: $3 \times 10^3\ M_\odot$
M4: $4 \times 10^3\ M_\odot$
M8: $8 \times 10^3\ M_\odot$

We also include a sample python script 01_02_prep_fits.py to read these HDF5 files using yt (Turk et al. 2011; http://yt-project.org). All values are in Gaussian cgs units. Files were dumped every 0.1 Myr from the onset of self-gravity.