The Local Milky Way, in 3D

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I want your DATA, INFORMATION to see our neighborhood in 3D (and 2D, and more).

An example of why VISUALIZATION choices matter.
"DATA, DIMENSIONS, DISPLAY" a.k.a. "DDD" (a.a.k.a. my personal quest)
DDD in *some* of the Local ISM, recently

Zucker et al. 2022

Bialy et al. 2021
DDD in *some* of the Local ISM, recently

GOAL = DDD in *all* of the Local Milky Way *as we know it*
great 1D, 2D and 3D data manipulation, flexible architecture facilitating plug-ins, data transfer, and interactive data exploration; “glupyter” flavor runs in web pages

Prototype plug-in in-use (e.g. Radcliffe Wave on Hayden Planetarium dome)

Prototype plug-in shows WWT images in context in 3D.

limited 2D all-sky images

great 2D object and all-sky images

limited 3D functionality

great 3D functionality

The “Perseus-Taurus Superbubble” a demo of the need for 2D-3D contextualization functionality

This video was composited using the WWT and OpenSpace, making some use of prototype plug-ins, but 2D and 3D imagery was aligned manually by experts. As a generalizable STEM concept, it explains the deceptive “forced perspective” made possible in when objects at very different distances, in 3D, appear to touch in 2D.
VISUALIZATION FEATURES

OVERVIEW CARTOON

STARS IN 3D

3D→2D (Sky) view shifting

“special” region indications (2D)

pop-outs

interaction, with user data added

models, direction, scales, grids

layer control + slicing (not shown)

3D moving CARTOON

User data + CARTOON

data + CARTOON + regions

fully interactive attitude control

Perseus & Taurus
look like they touch
on our night sky...

yellow line from sphere's center points back toward Earth

yellow line from sphere's center points back toward Earth

but do they really?
yes, this is the B-field on the surface of the Local Bubble from O’Neill et al. 2022, in process
And, yes, Planck and distance-filtered background starlight polarimetry seem to agree
O’Neill et al. 2022, in process
DATA, INFORMATION

(3D) data sets useful to a 3D map of the Milky Way near the Sun

Digital Universe

Contribute 3D "nearby" Milky Way data here!

Please answer as many questions as you can in order for the community to have access to the data you share.

* Required

ShortIdentifier *

Your answer

Description of the data you are uploading (free text)

Your answer

VISUALIZATION

computer

planetarium

beyond...
The Local Milky Way, in 3D
O’Neill et al. 2022, in process