

Exploring Metrical and Angular Anamorphs

Refining 67P Dust Transport Maps

In Constant-Scale Natural Boundary mapping, interruption patterns, or 'trees,' define maps.

In our search for trees to make clear the suborbital ballistic dust transport on 67P/Churyumov-Gerasimenko, we saw that 'branches' in the comet's neck scrunched the maps' middles.

So, we pruned the tree. While the scale increased in these areas, our problem of clarity was solved.

Proportion refined these maps by modifying their trees.

Are they the most telling trees?

The crucial trees? Perhaps not.

But intuition, experience, new data and analysis (terminal sinks [abs. #2412]),

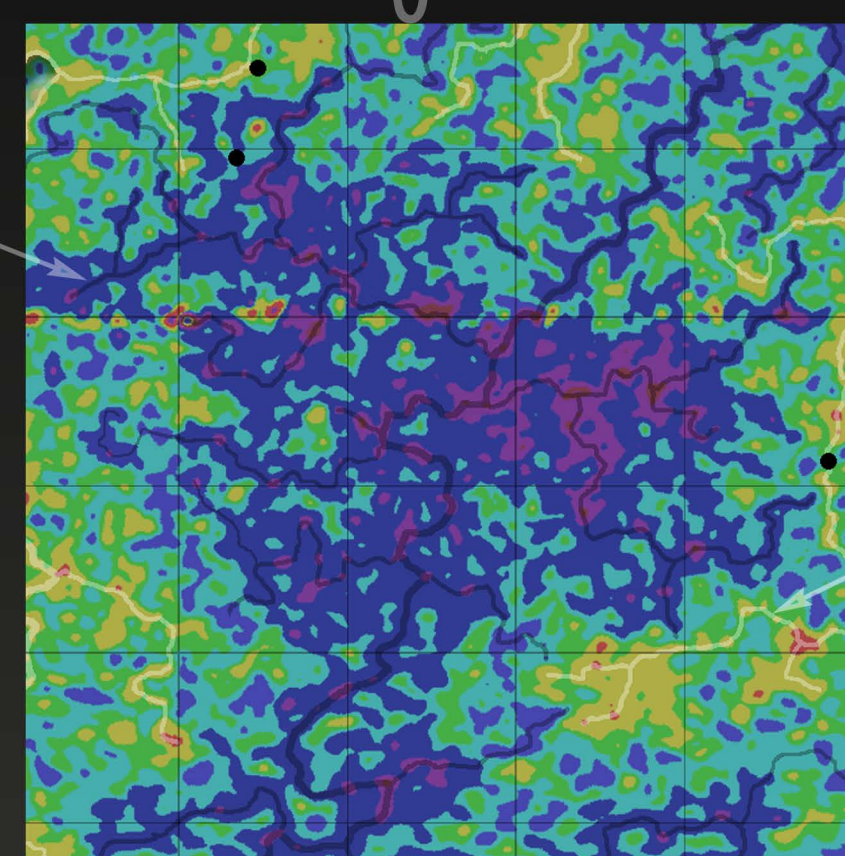
and even guesses (does most dust go west, via the neck's wider valley?) can refine these maps by finetuning their trees.

In such ways, CSNB radically liberates how we make and use map projections

Creating Software

Narrating Automated Boundary Extraction

scout routes along "coldcourses"



scout routes along "hotcourses"

In the world of automation, eager scouts explore the varied lines of slope in the CMB temperature. They seek critical lines and, along those lines, critical points, where the slightest change in direction can have significant consequences...

In SpatioTemporal Adaptive Resolution Encoding [STARE], data is handled at a variety of resolutions.

Users control resampling, interpolation, and reprojection at the highest resolution available rather than a lowest common denominator.

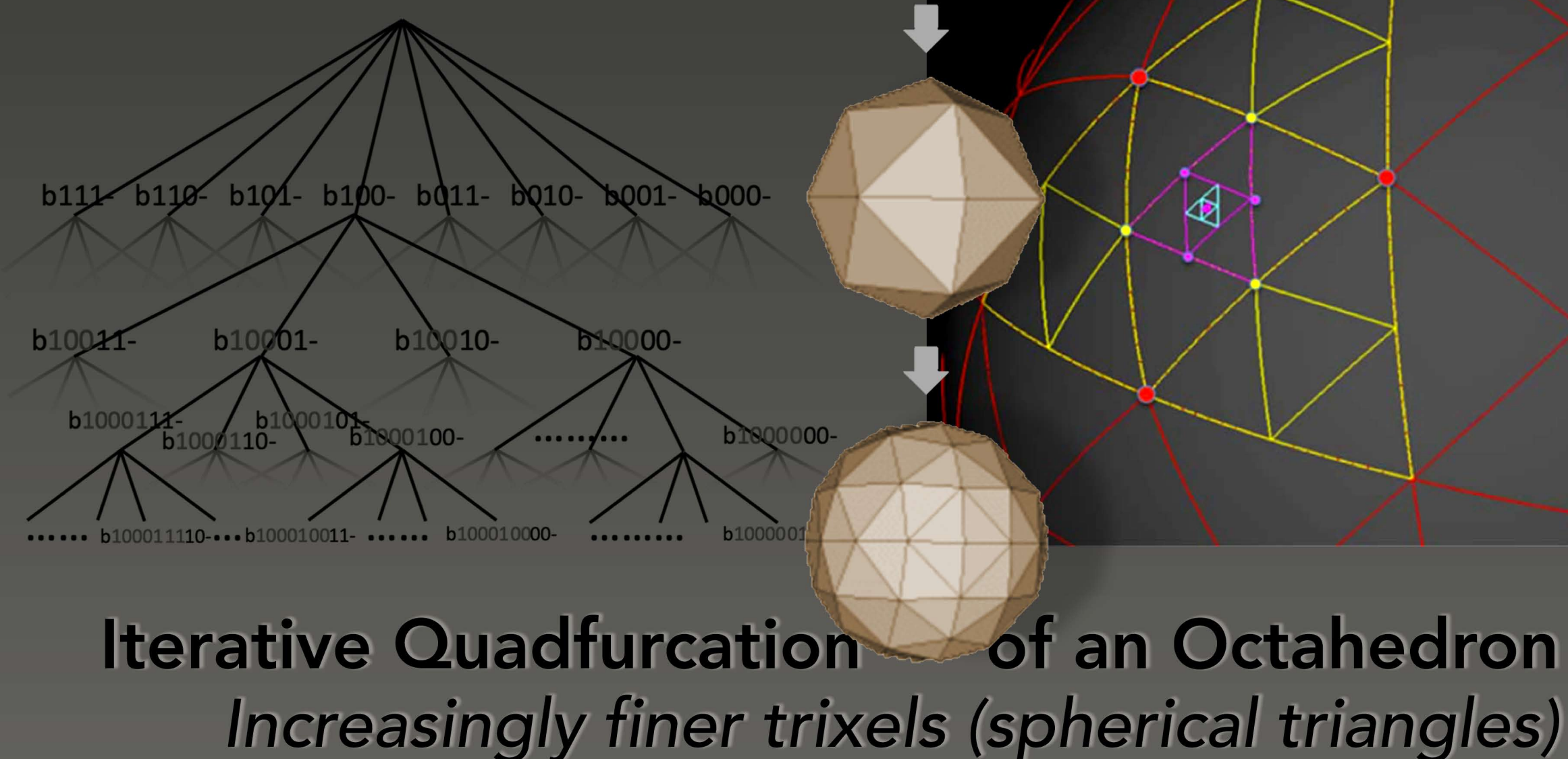
Data partitioned with STARE are spatiotemporally aligned in storage and memory

Leveraging STARE Hierarchy

Distributed parallelization becomes scalable!

Database-like "joins" become trivial

Parallel Optimized Data Store [PODS] exploits the STARE hierarchy for data storage and memory organization. It harmonizes diverse multi-resolution data for parallel processing.



Iterative Quadfurcation of an Octahedron Increasingly finer trixels (spherical triangles)

STARE-PODS supports Constant-Scale Natural Boundary map generation. Each trixel has its own projection function which, in toto, approximates CSNB. (CSNB will be piecewise continuous except at interruption trees.)

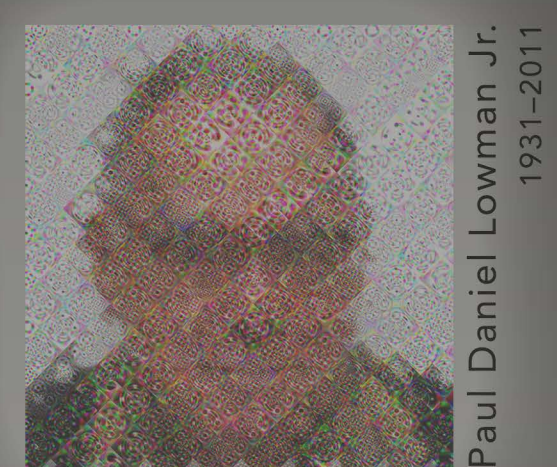
Result: world maps organized by discipline or topic, like these comet maps, but managed by software.

Imagine: digital twins recomposed as comprehensive Subject Of Interest animations; non-euclidean, predictive stress diagrams for ice-shell moons; Planetary Information Modeling...

CSNB + STARE-PODS = PIM

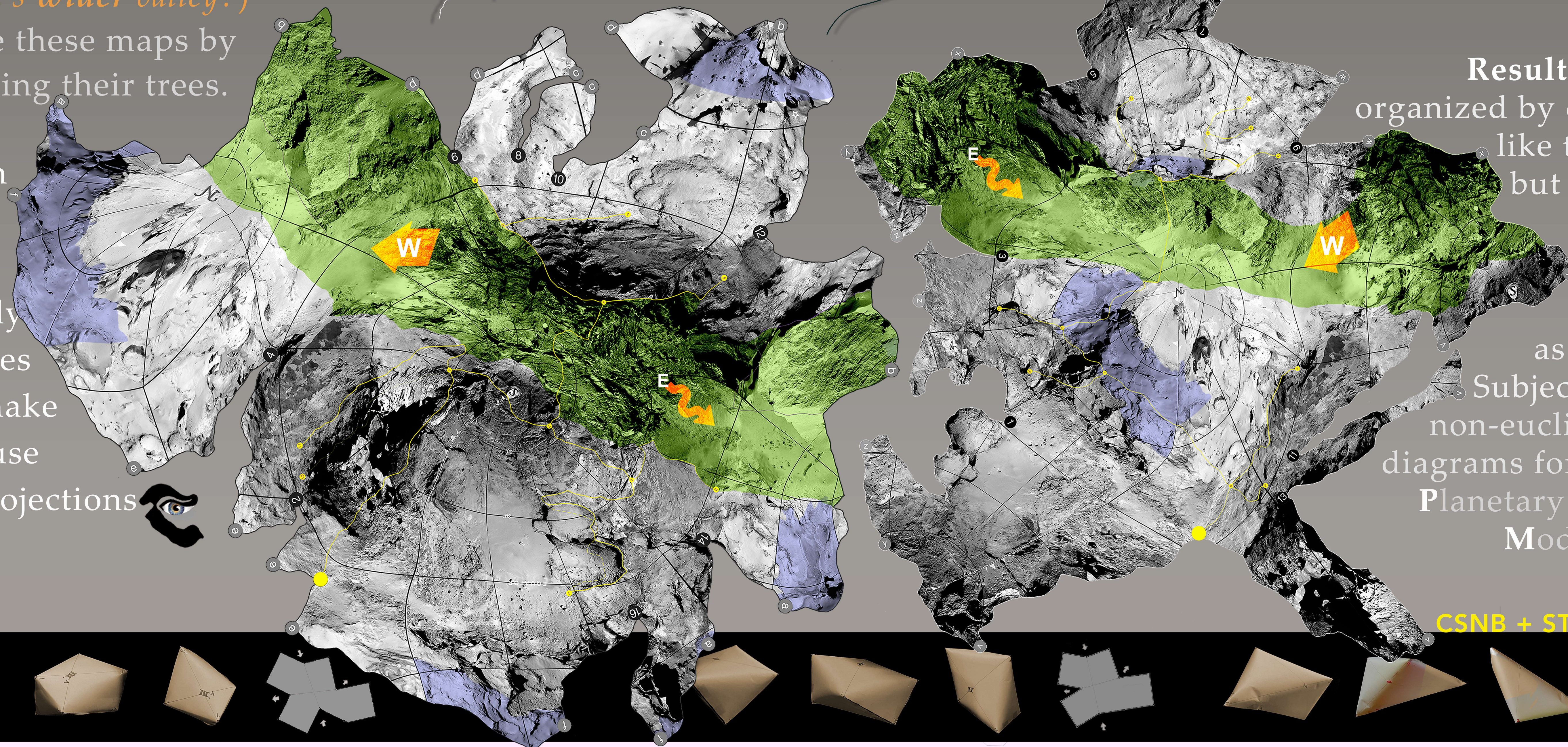


This tree makes the top-left QR. An analogous but fluctuate tree, tracing atmospheric data structure, would make meteorological and climatological global maps



top-left QR 4

top-left QR 3



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WHAT SHAPE IS THE OCEAN?

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