

Initial Calculations

PV^* and Z^* : Look for $\widetilde{V}^* \geq 1$

\bar{V} : LTDM V

$$V^* = V - \bar{V}$$

$$\alpha = 1.5 \times \sigma_{V^*}$$

or α_{min}

$$\widetilde{V}^* = \frac{V^*}{\alpha}$$

ZG : Satisfy $GHGN$ and $GHGS$ criteria

$$GHGN = \frac{Z(\phi_n) - Z(\phi_0)}{\phi_n - \phi_0}$$

$$GHGS = \frac{Z(\phi_0) - Z(\phi_s)}{\phi_0 - \phi_s}$$

NH: $ZG = 1$ if
 $GHGN < -10$ m/deg lat
 $GHGS > 0$ m/deg lat

SH: $ZG = 1$ if
 $GHGN < 0$ m/deg lat
 $GHGS > 10$ m/deg lat

StitchBlobs

Inputs

file list

variable

region constraint

time/size
constraints

Instantaneous Blocking

Identify points
where variable ≥ 1

Determine
clusters (nearest
neighbor)

Eliminate
clusters smaller
than min size

Create 3D (t, x, y) blobs:

Over time axis, join
clusters that overlap
by at least 1 grid box

Per blob

Eliminate blobs
persisting less
than min duration

Assign a unique
identifier

Per time step:
find min/max/center
lat/lon values, area