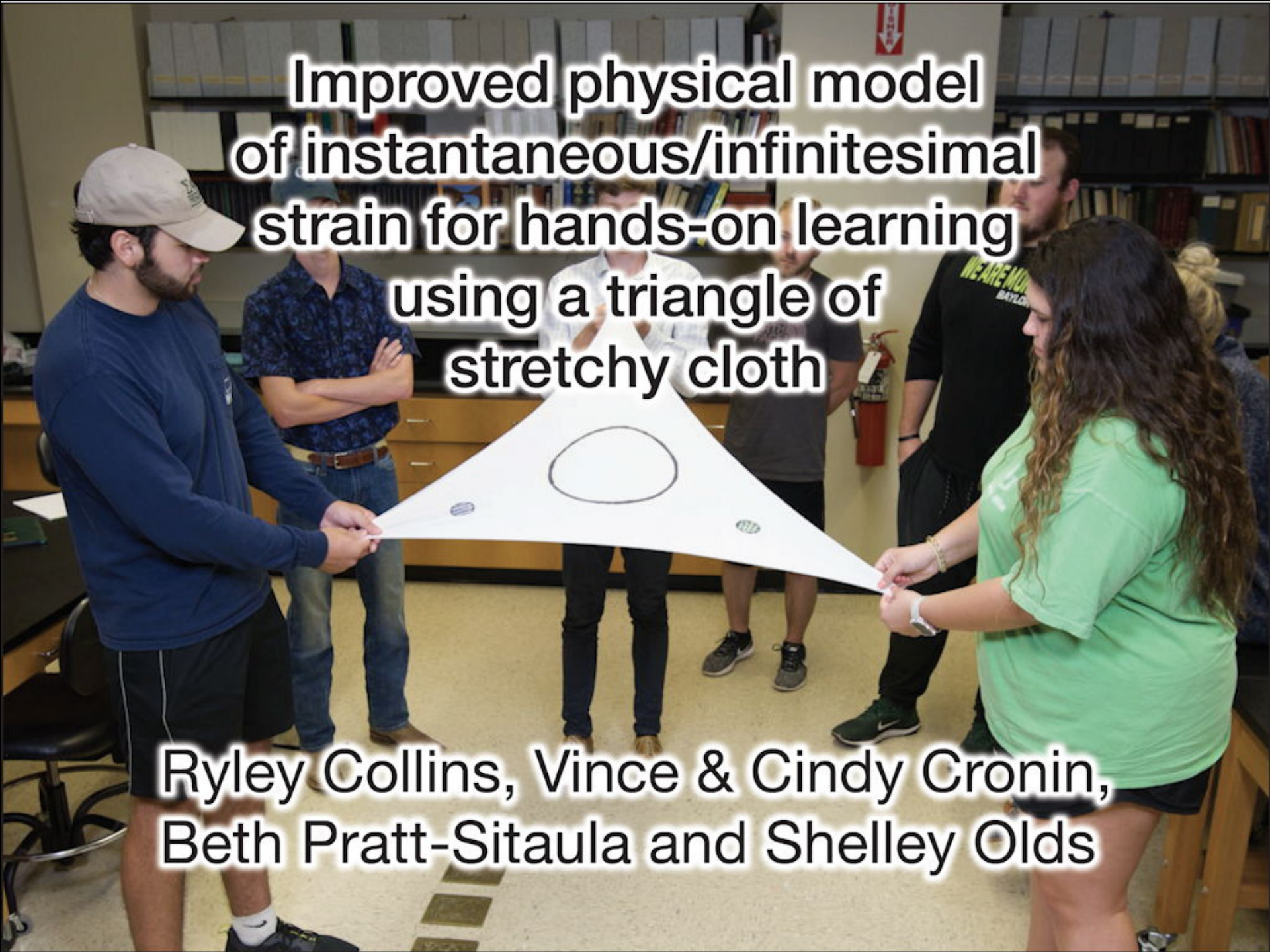
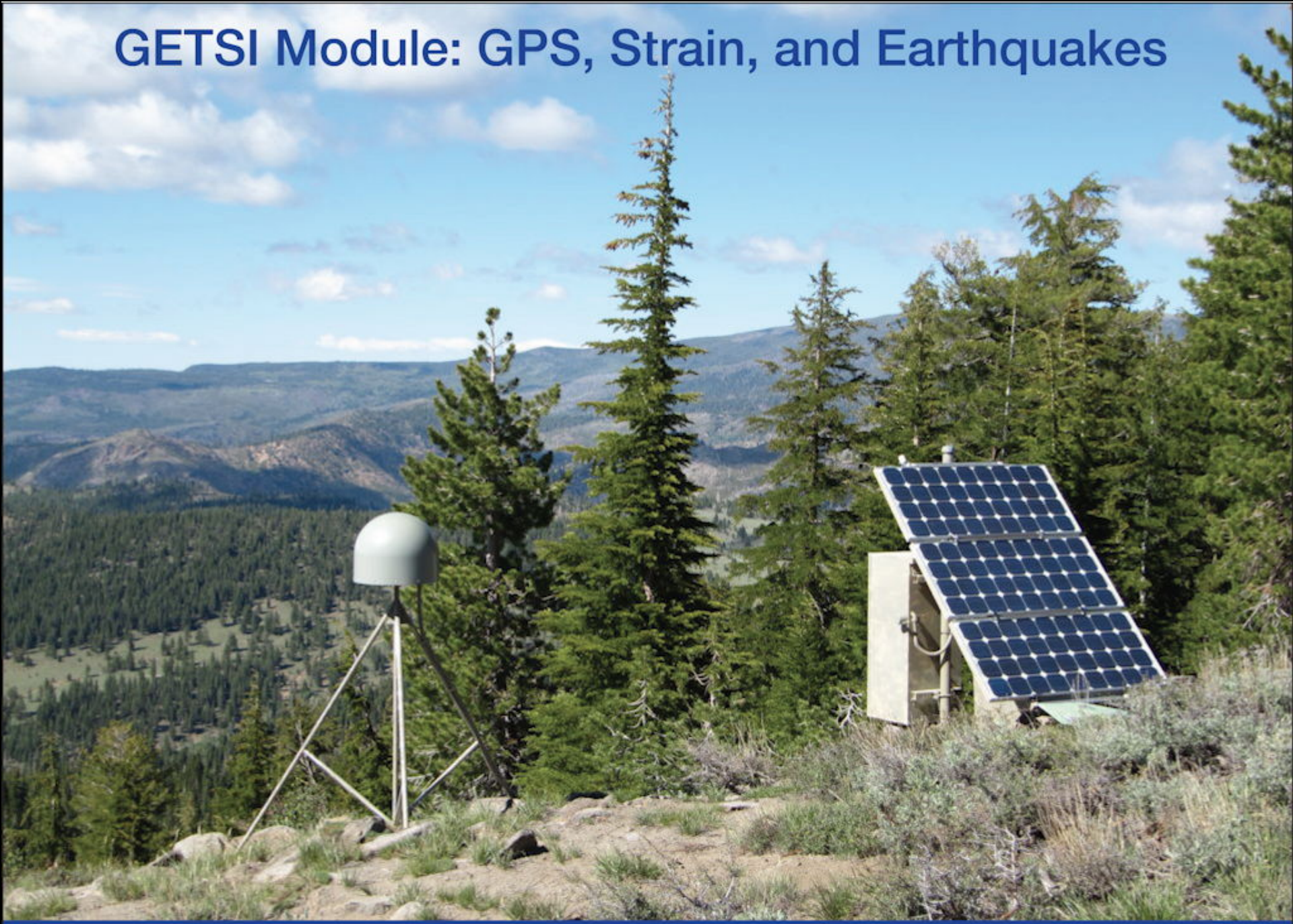
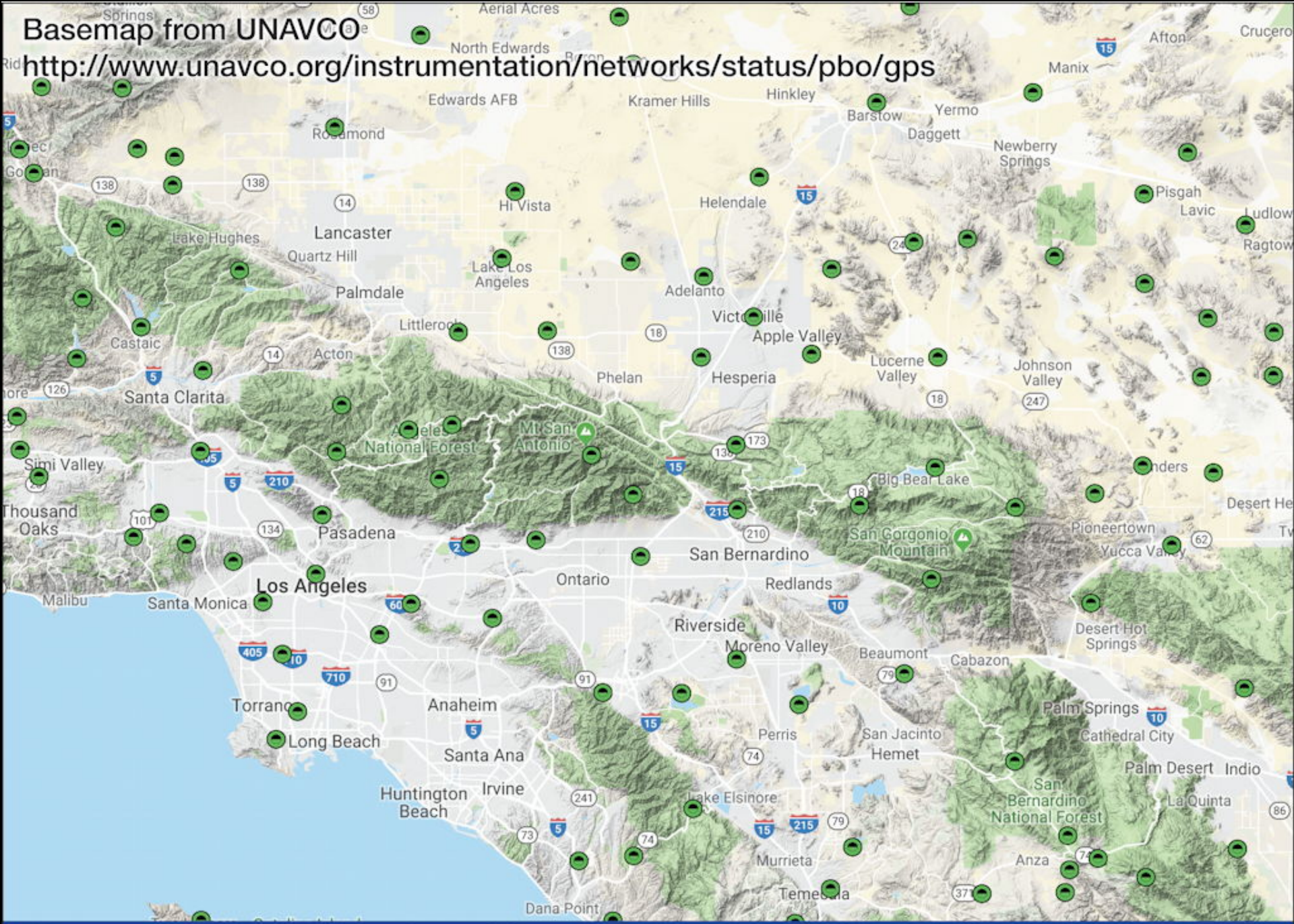

Improved physical model
of instantaneous/infinitesimal
strain for hands-on learning
using a triangle of
stretchy cloth
Ryley Collins, Vince & Cindy Cronin,
Beth Pratt-Sitaula and Shelley Olds

GETSI Module: GPS, Strain, and Earthquakes



For more information, http://croninprojects.org/TriangleStrainClothModel/


Basemap from UNAVCO
http://www.unavco.org/instrumentation/networks/status/pbo/gps
Aerial Acres
North Edwards
Edwards AFB
Kramer Hills
Hinkley
Barstow
Yermo
Daggett
Manix
Afton
Newberry Springs
Pisgah
Lavic
Rosamond
Hi Vista
Helendale
Lancaster
Lake Hughes
Quartz Hill
Lake Los Angeles
Palmdale
Adelanto
Victorville
Apple Valley
Littlerock
Castaic
Acton
Phelan
Hesperia
Lucerne Valley
Johnson Valley
Santa Clarita
Mt San Antonio
Big Bear Lake
Simi Valley
Thousand Oaks
Pasadena
San Bernardino
San Gorgonio Mountain
Pioneertown
Yucca Valley
Los Angeles
Ontario
Redlands
Malibu
Santa Monica
Riverside
Moreno Valley
Beaumont
Cabazon
Desert Hot Springs
Torrance
Anaheim
Long Beach
Santa Ana
Perris
San Jacinto
Hemet
Palm Springs
Cathedral City
Palm Desert
Indio
Huntington Beach
Irvine
Lake Elsinore
San Bernardino National Forest
La Quinta
Murrieta
Temecula
Anza
Dana Point
For more information, http://croninprojects.org/TriangleStrainClothModel/

UNAVCO

Community | Projects | Instrumentation | Data

home › instrumentation › networks › pbo › overview › P574

Instrumentation
- Help with Instrumentation
- Network Monitoring
  - All Networks & Stations
  - All Real-time GNSS/GPS Networks
  - PBO Networks
    - PBO GNSS/GPS Network
    - PBO GNSS/GPS Real-time
    - PBO Strainmeter Network
    - PBO Seismic Network
  - Polar GNSS/GPS Networks
    - ANET
    - GNET
    - Polar Networks State of Health
  - NASA-GGN GNSS/GPS Network
  - COCONet GNSS/GPS Network
    - COCONet GNSS/GPS Real-time
  - TLALOCNet GNSS/GPS Network
    - TLALOCNet GNSS/GPS Real-time
  - Principal Investigator GNSS/GPS Stations

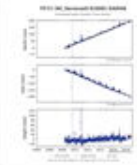
Related Links
- *PBO Project Overview*

P574 - Overview | PBO Station Page

Overview | Data Products | Station Health | Maintenance | Photos

P574 Overview

Station Position



Station Type: GPS

Station Information

4-Char ID:	P574 - GPS
Station Status:	Installed / C
Station Name:	Mt_Harwoo
Project:	PBO
Location (City, State):	Upland, CA
Latitude, Longitude*:	34.287, -11
Elevation*:	2,674 m
Monument Type:	SDBM
Station Install Date:	2008/06/06
Monument Install Date:	2008/06/06
Current Status:	OK

*GPS receiver values - not precise

Station Data

Station Report:	Text File
Installation Report:	VPN or Internal
Time Series Data:	NAM08 CSV |
Time Series Plot Viewer:	Nearby GPS P
Realtime Dataflow:	Not Available
Meteorologic Plots:	Not Available

Colocated Instruments

P574:	GPS_RECEIVER

GPS Monument Coordinates

Approximate Geographic Coordinates

lat/lon/elev (d/d/m)*:	34.28877	-117.83389
X/Y/Z (m/m/m):	-2447939.9832	-4675739.5032
Ref Epoch**:	2018.696	

*Approximate latitude and longitude the average of the last 7 days of positions from the analys and are in decimal degrees and elevation is in meters, where "elevation" is the vertical topoce from the reference ellipsoid to the antenna reference point (ARP). See CORS for legal positio

**Station position based on the most recent full 7 days of final orbit solutions available, with th epoch being the middle day of this 7 day period.

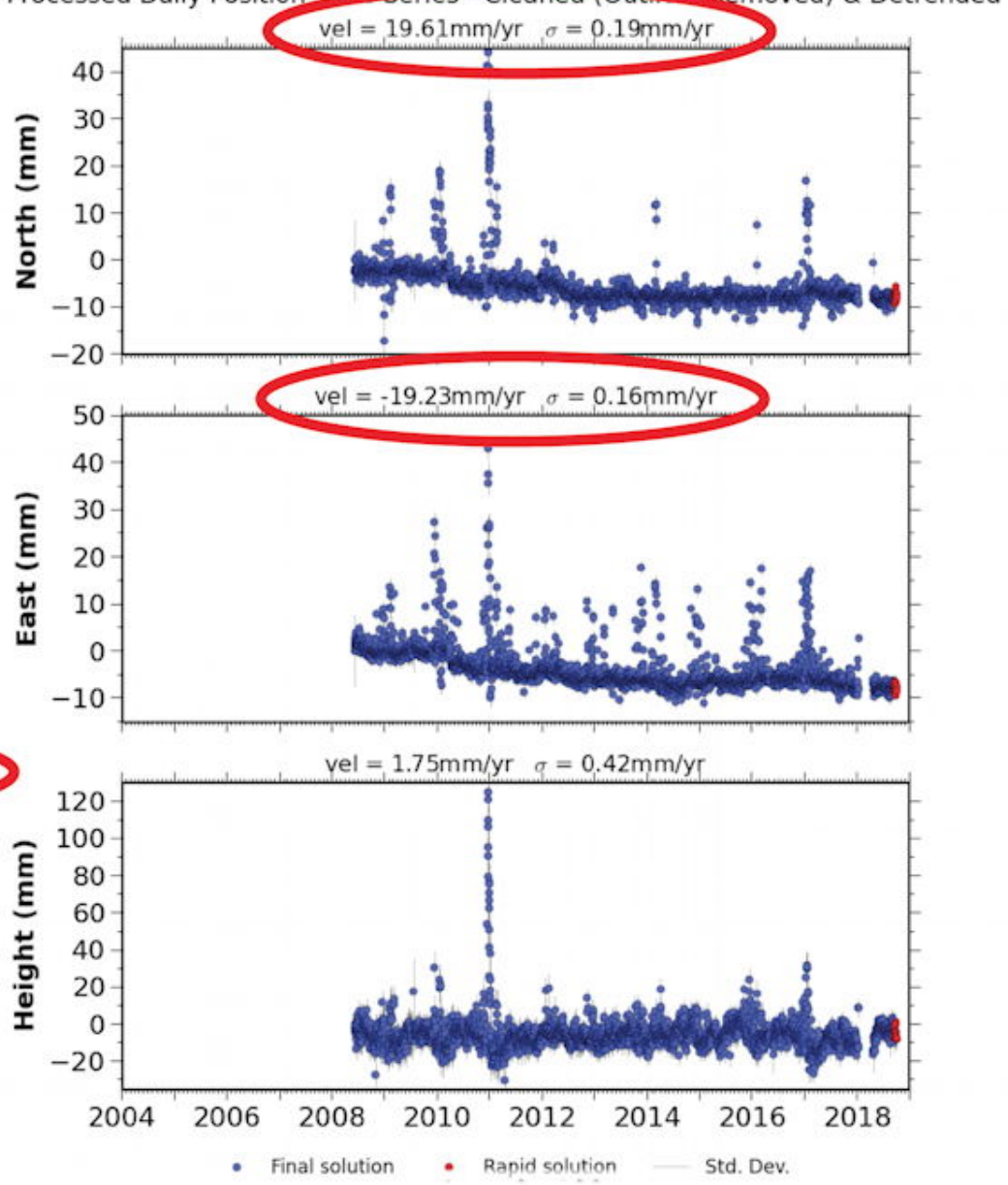
Sponsored by

Community
- Meetings & Events

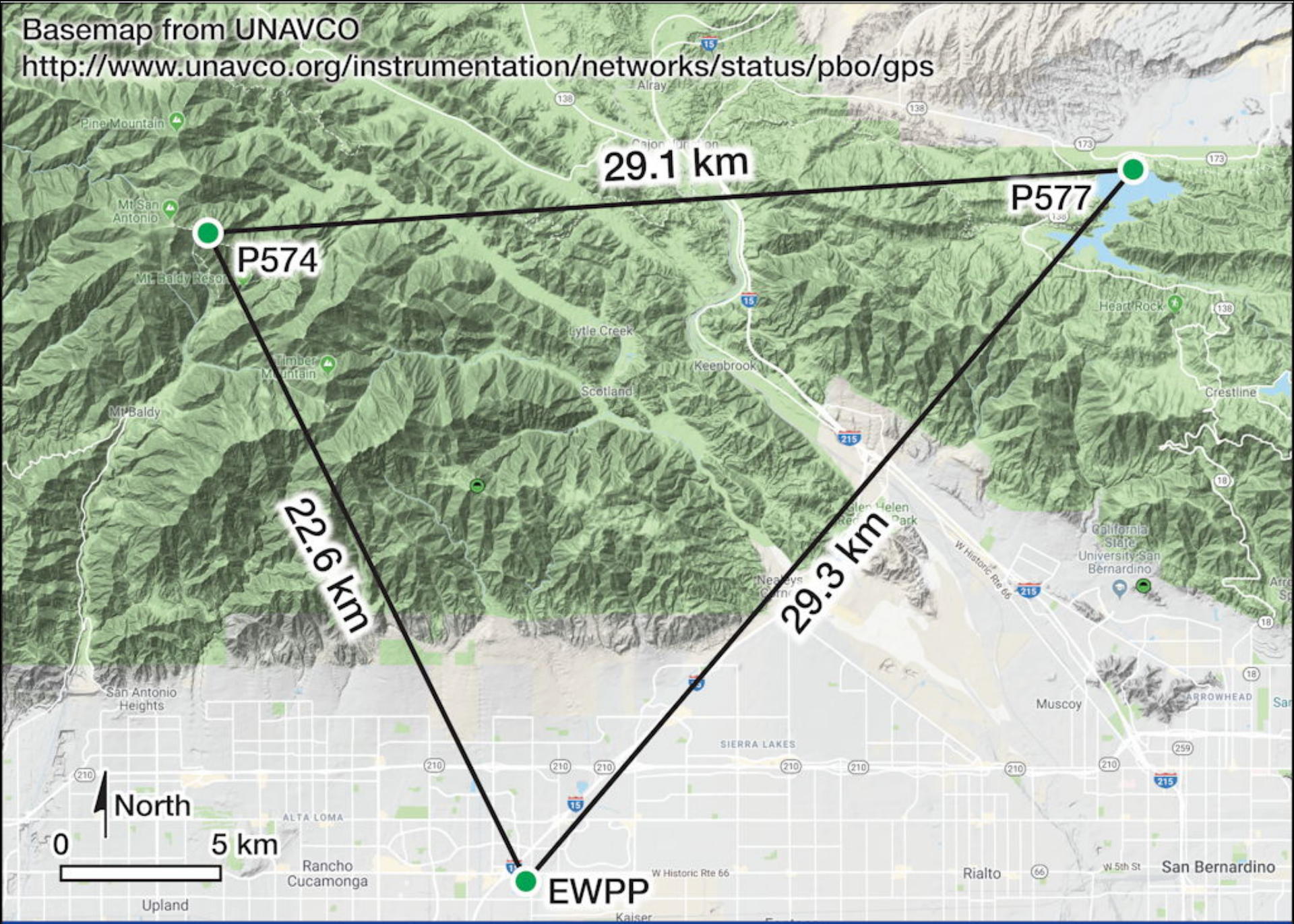
Communicatio
- UNAVCO Highlig

P574 (Mt_HarwoodCS2008) NAM08

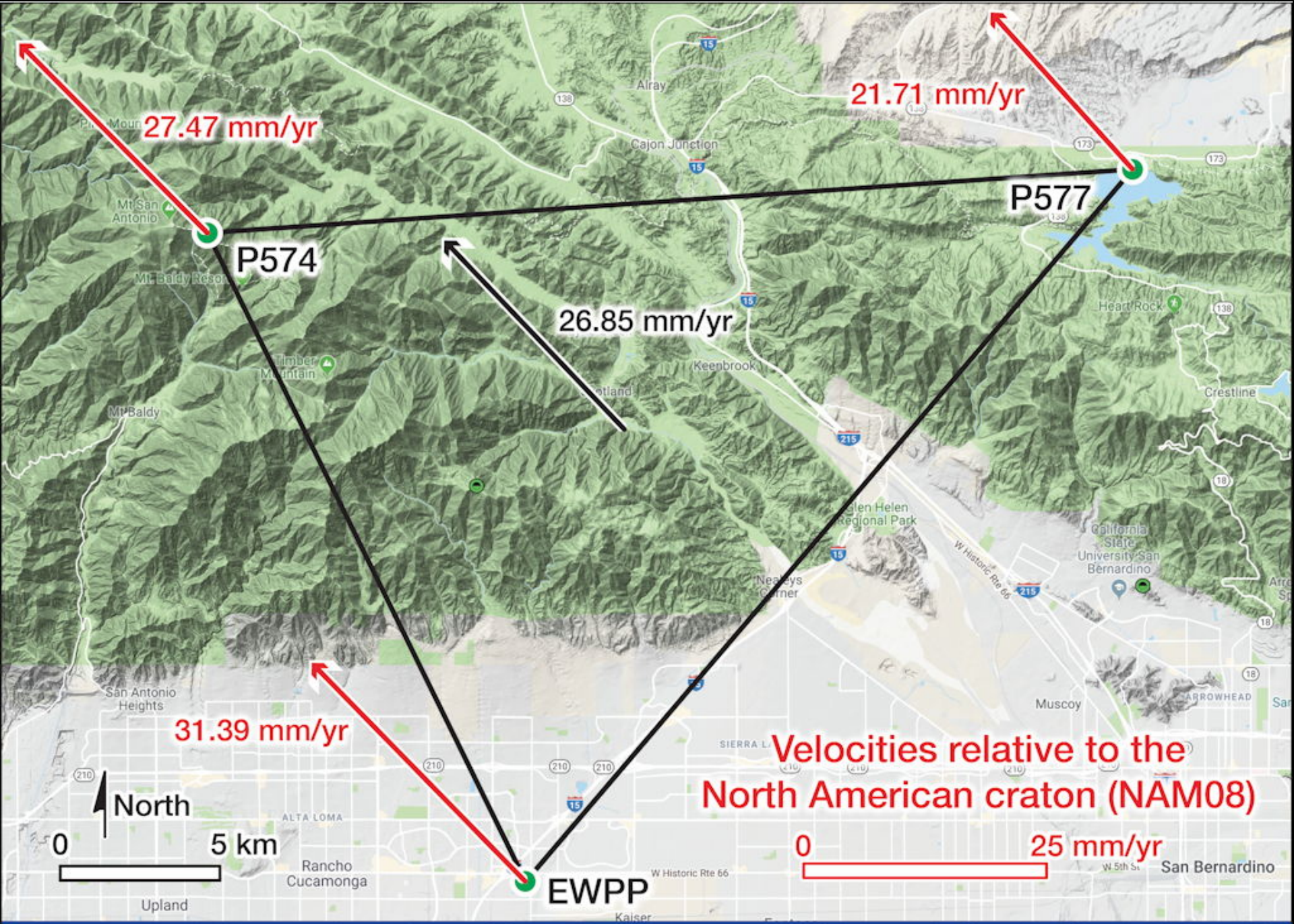
Processed Daily Position Time Series - Cleaned (Outliers Removed) & Detrended



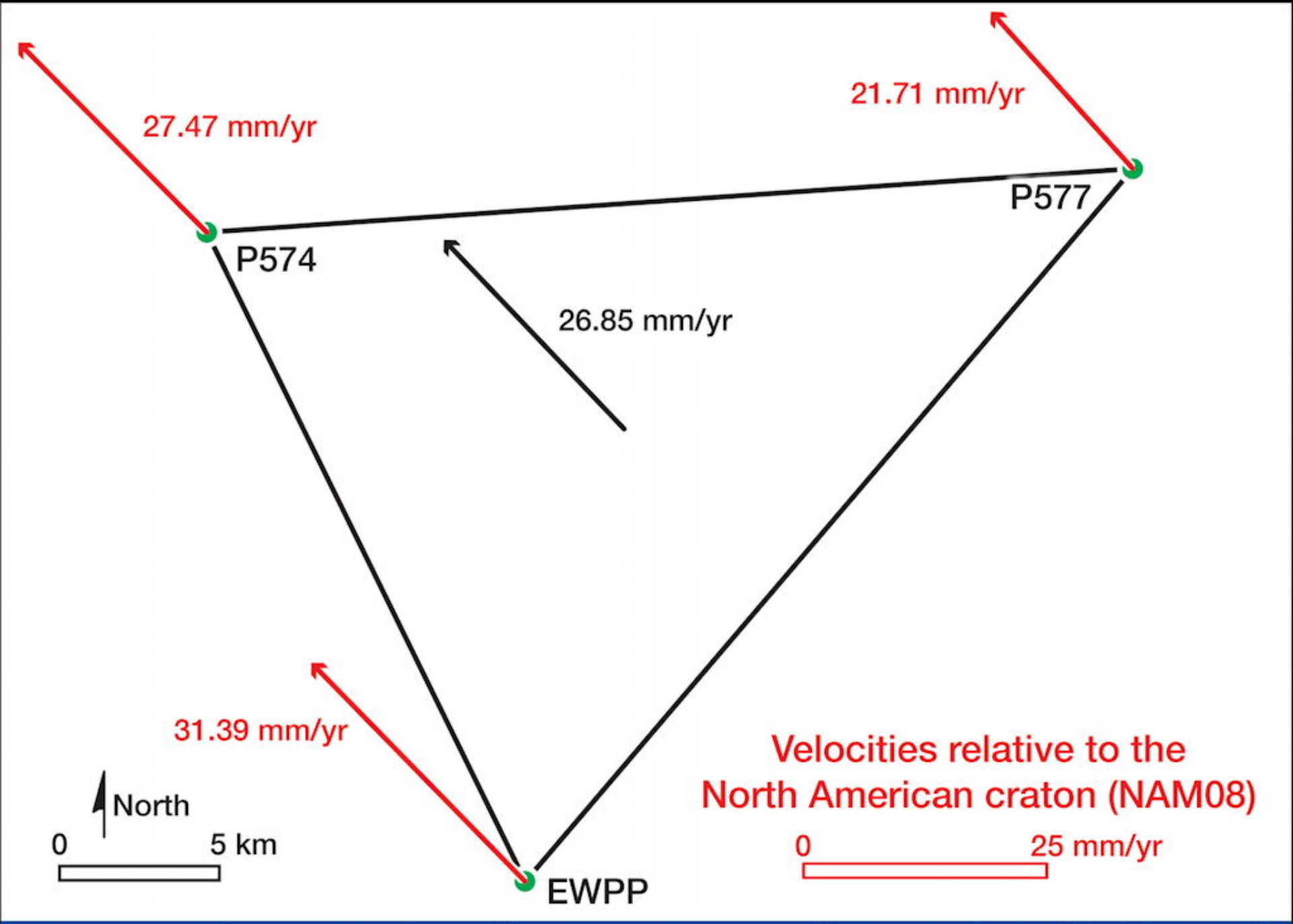
For more information, http://croninprojects.org/TriangleStrainClothModel/



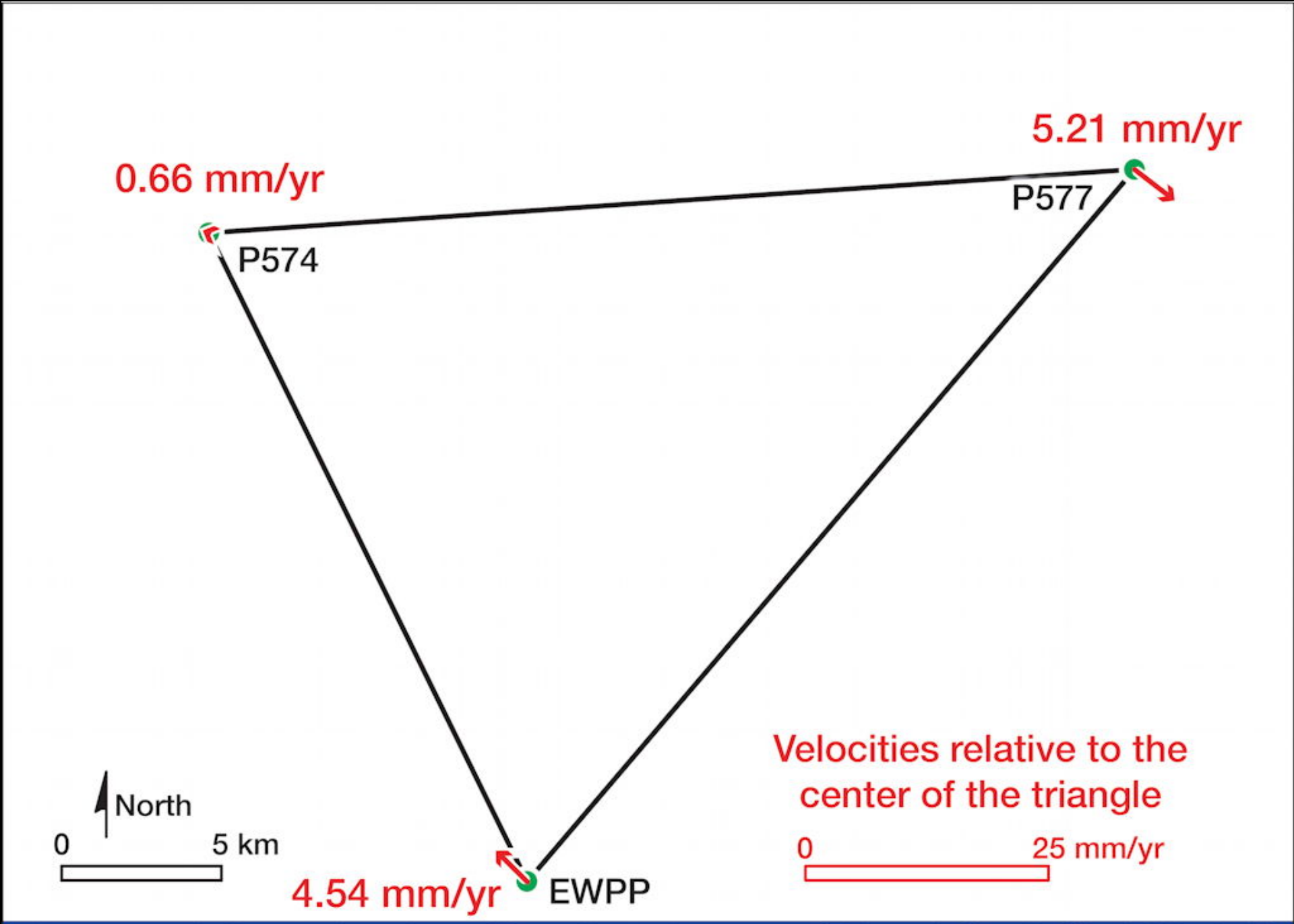
For more information, http://croninprojects.org/TriangleStrainClothModel/



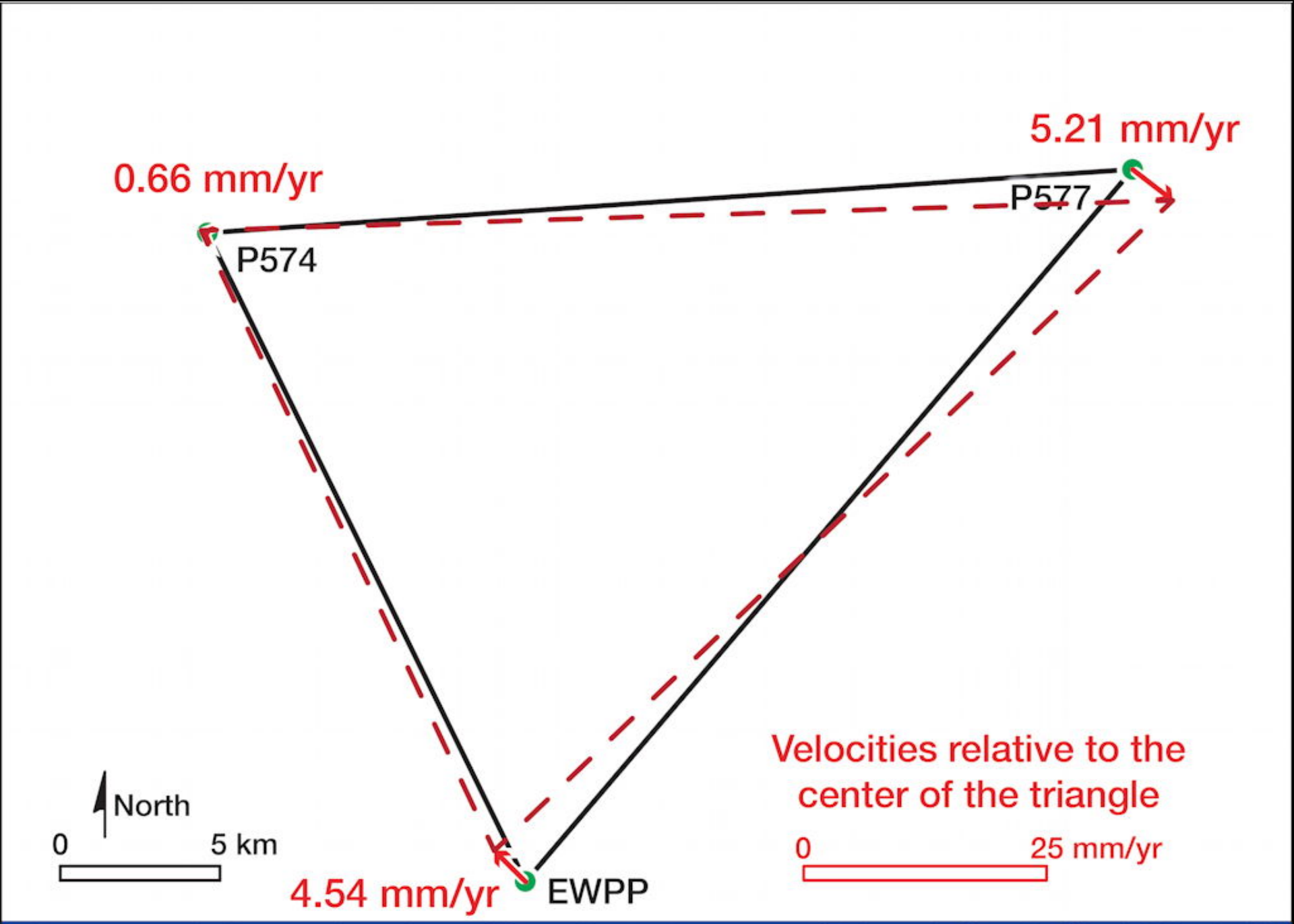
For more information, http://croninprojects.org/TriangleStrainClothModel/



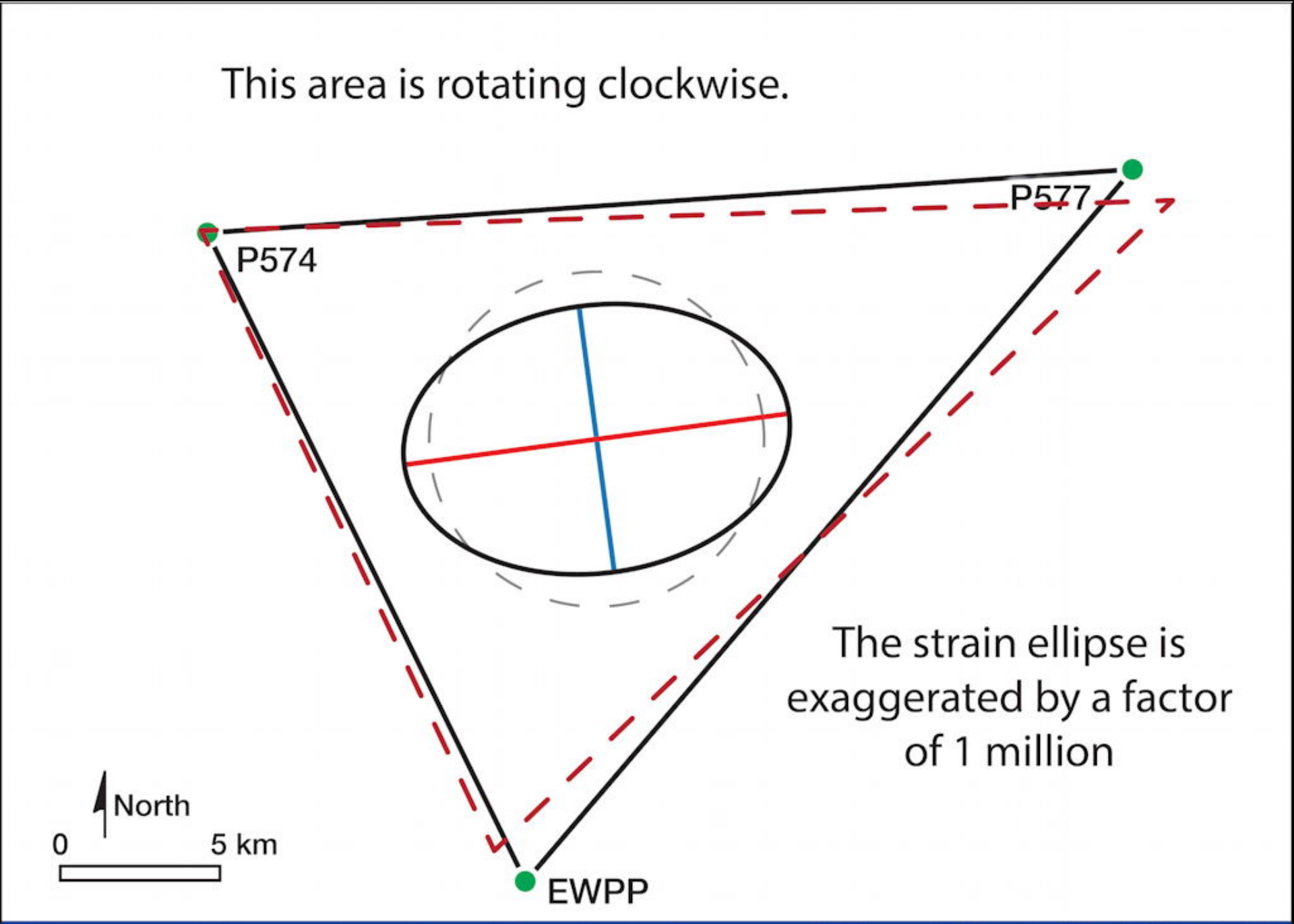
For more information, http://croninprojects.org/TriangleStrainClothModel/



For more information, http://croninprojects.org/TriangleStrainClothModel/

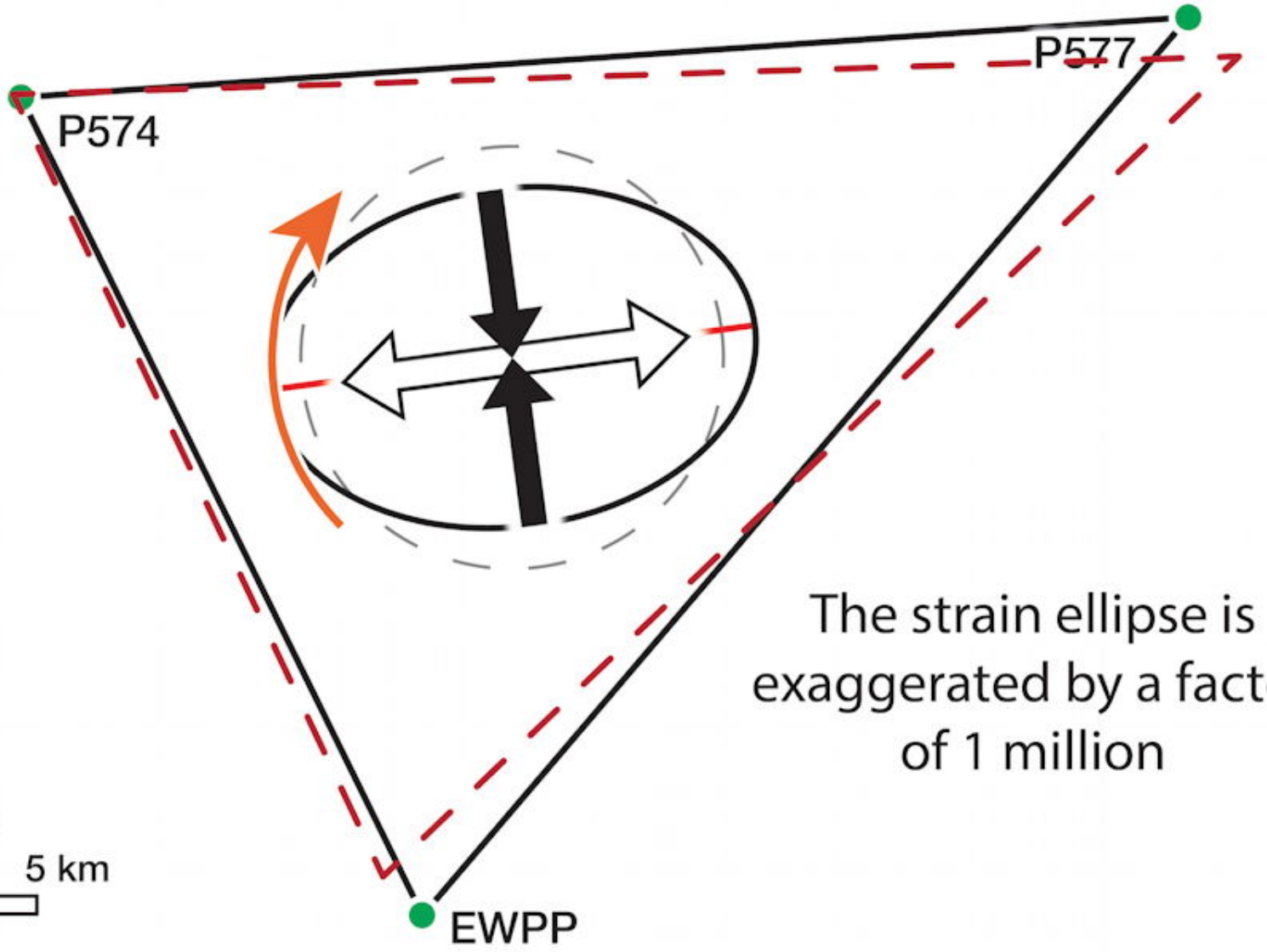


For more information, http://croninprojects.org/TriangleStrainClothModel/



For more information, http://croninprojects.org/TriangleStrainClothModel/

This area is rotating clockwise.



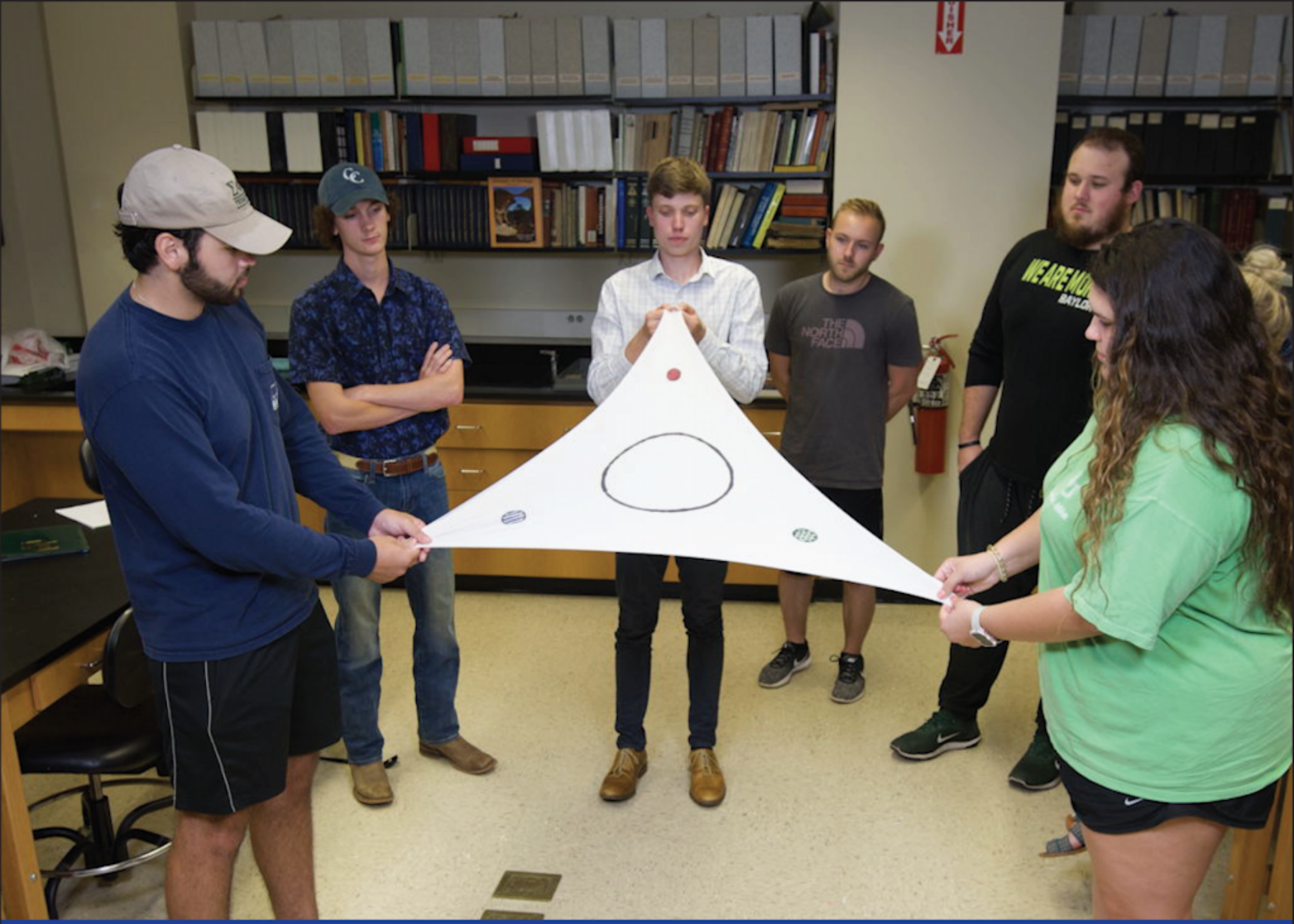
The strain ellipse is exaggerated by a factor of 1 million

North

0 5 km

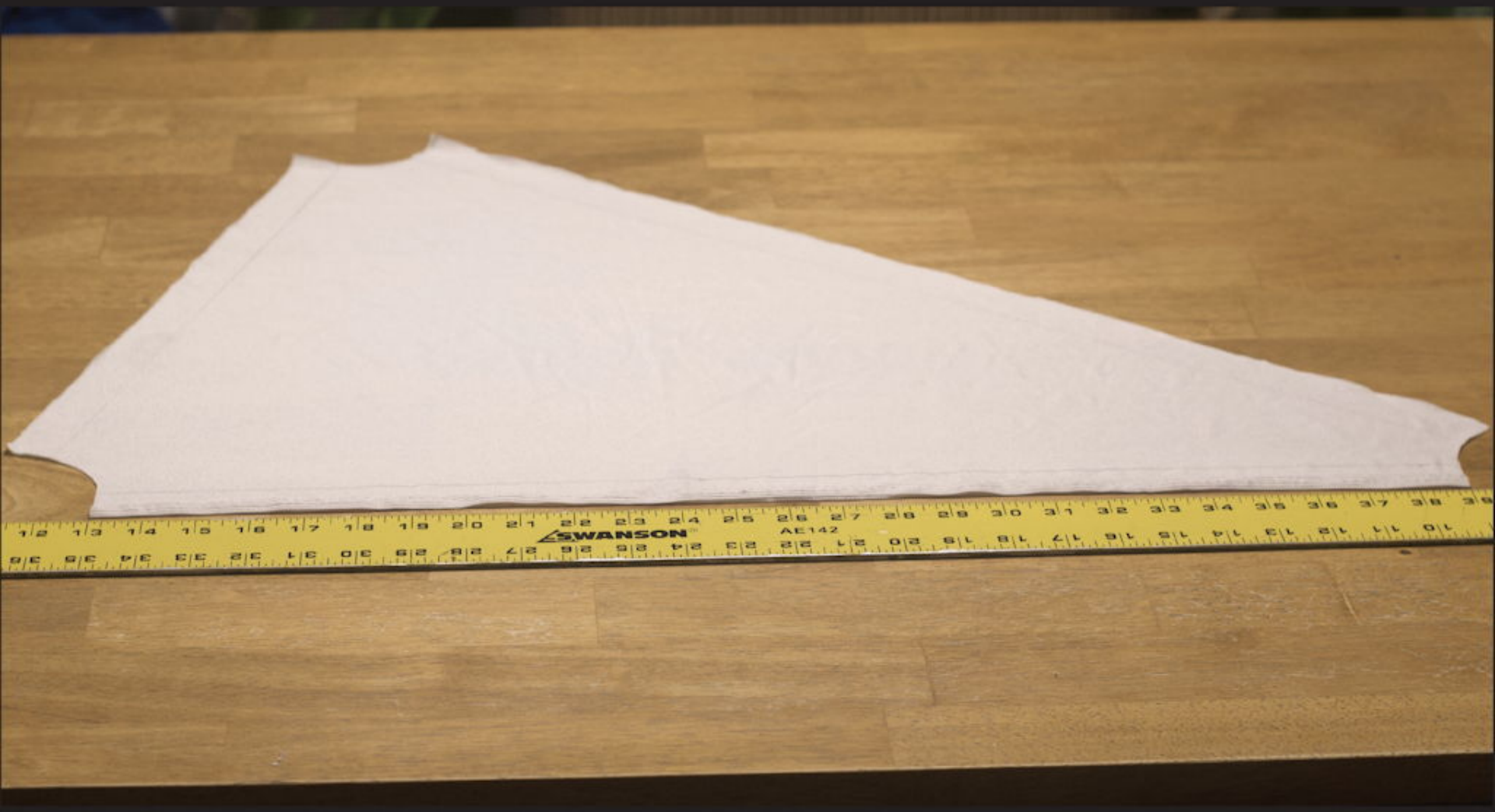
For more information, http://croninprojects.org/TriangleStrainClothModel/

For more information, http://croninprojects.org/TriangleStrainClothModel/

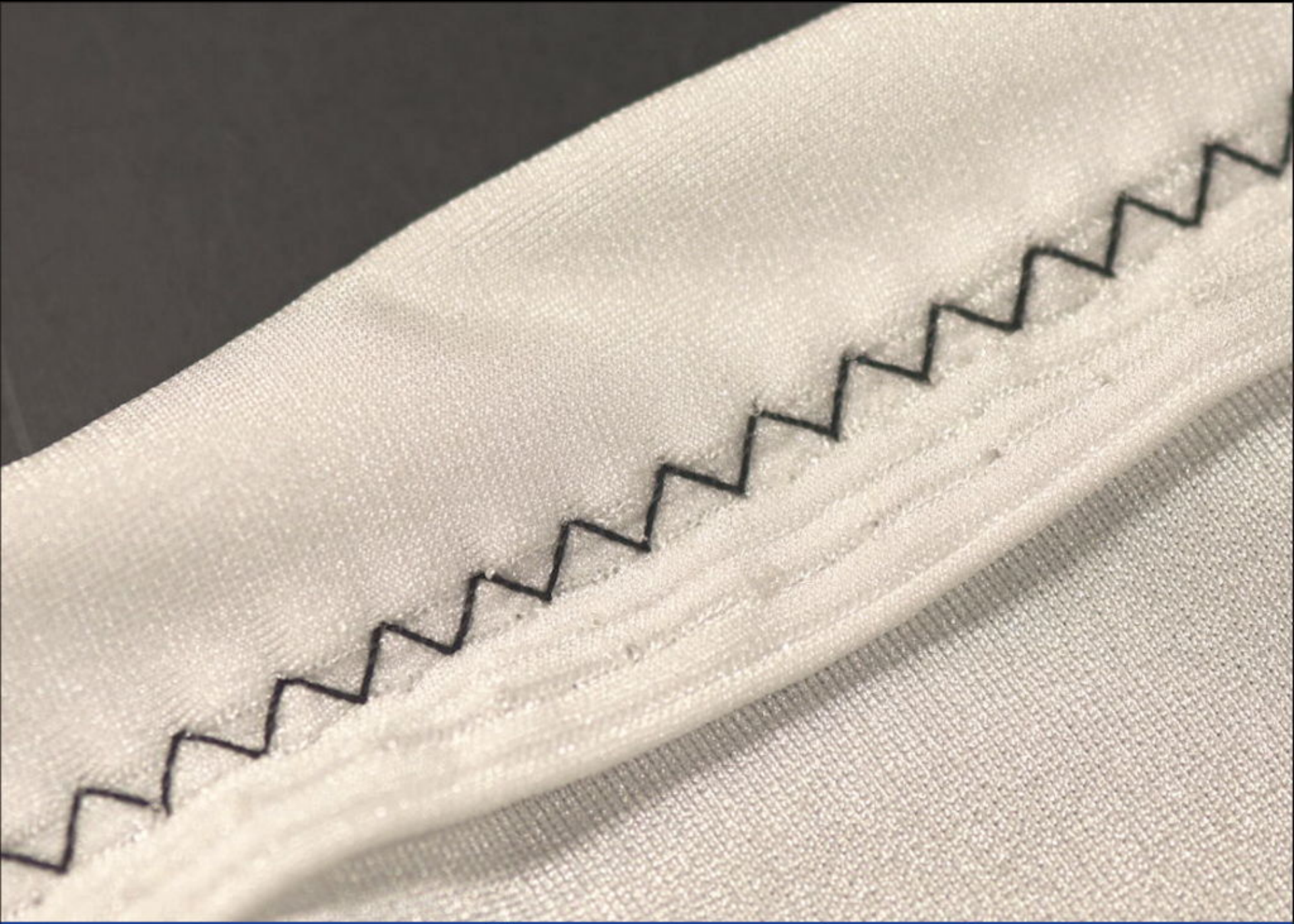


For more information, http://croninprojects.org/TriangleStrainClothModel/

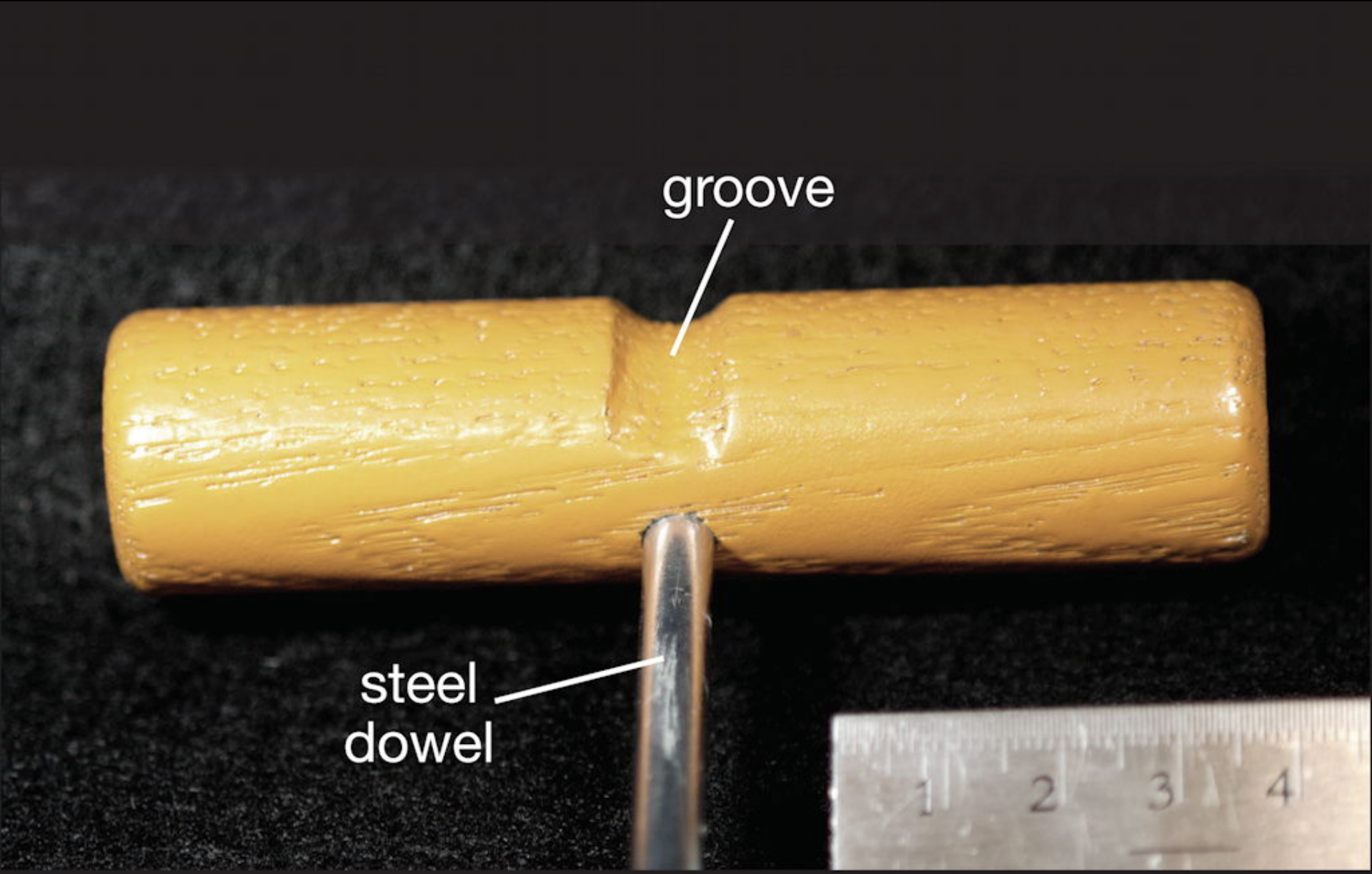
http://croninprojects.org/Vince/PhysModel/StretchFabric_r.jpg



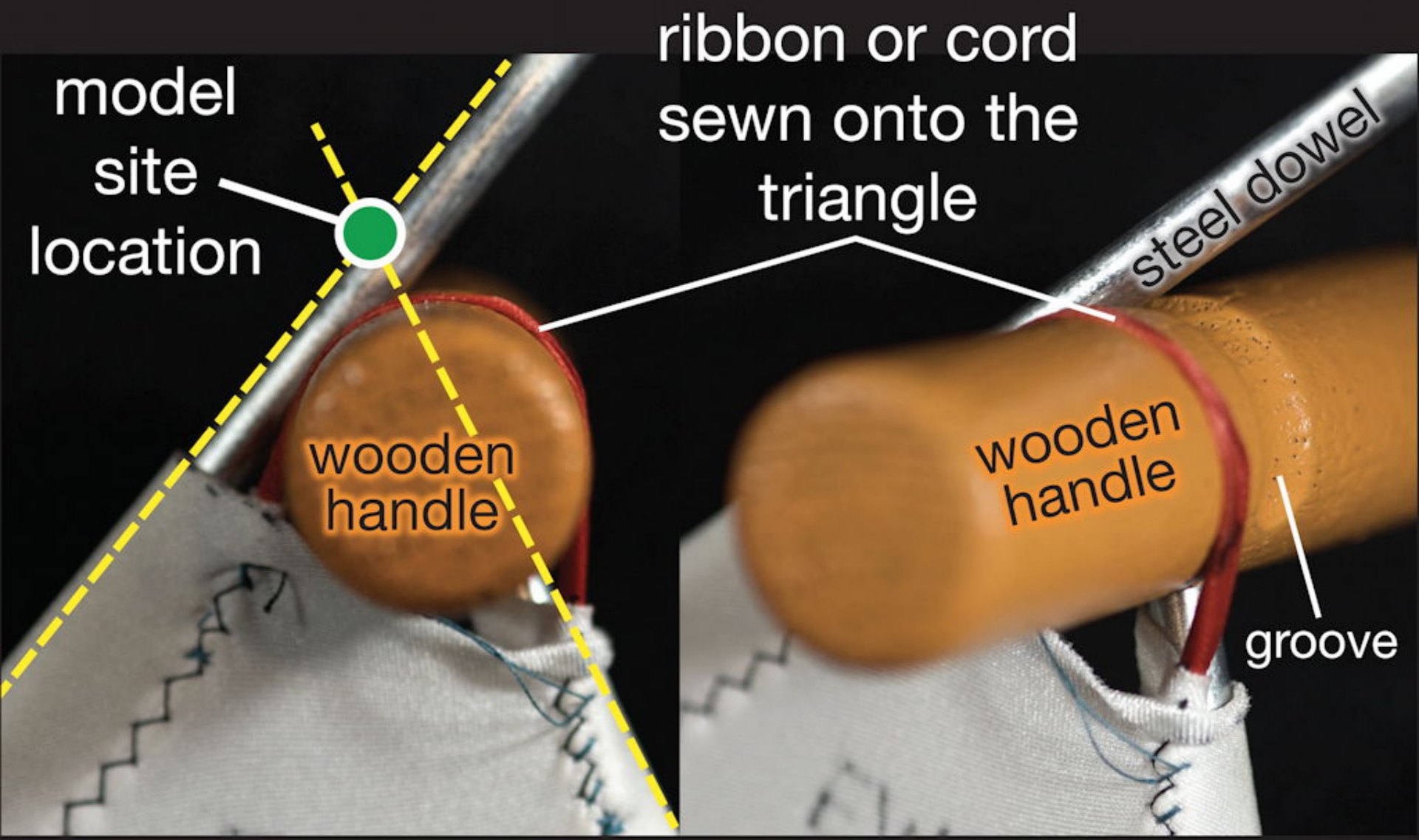
For more information, http://croninprojects.org/TriangleStrainClothModel/



For more information, http://croninprojects.org/TriangleStrainClothModel/

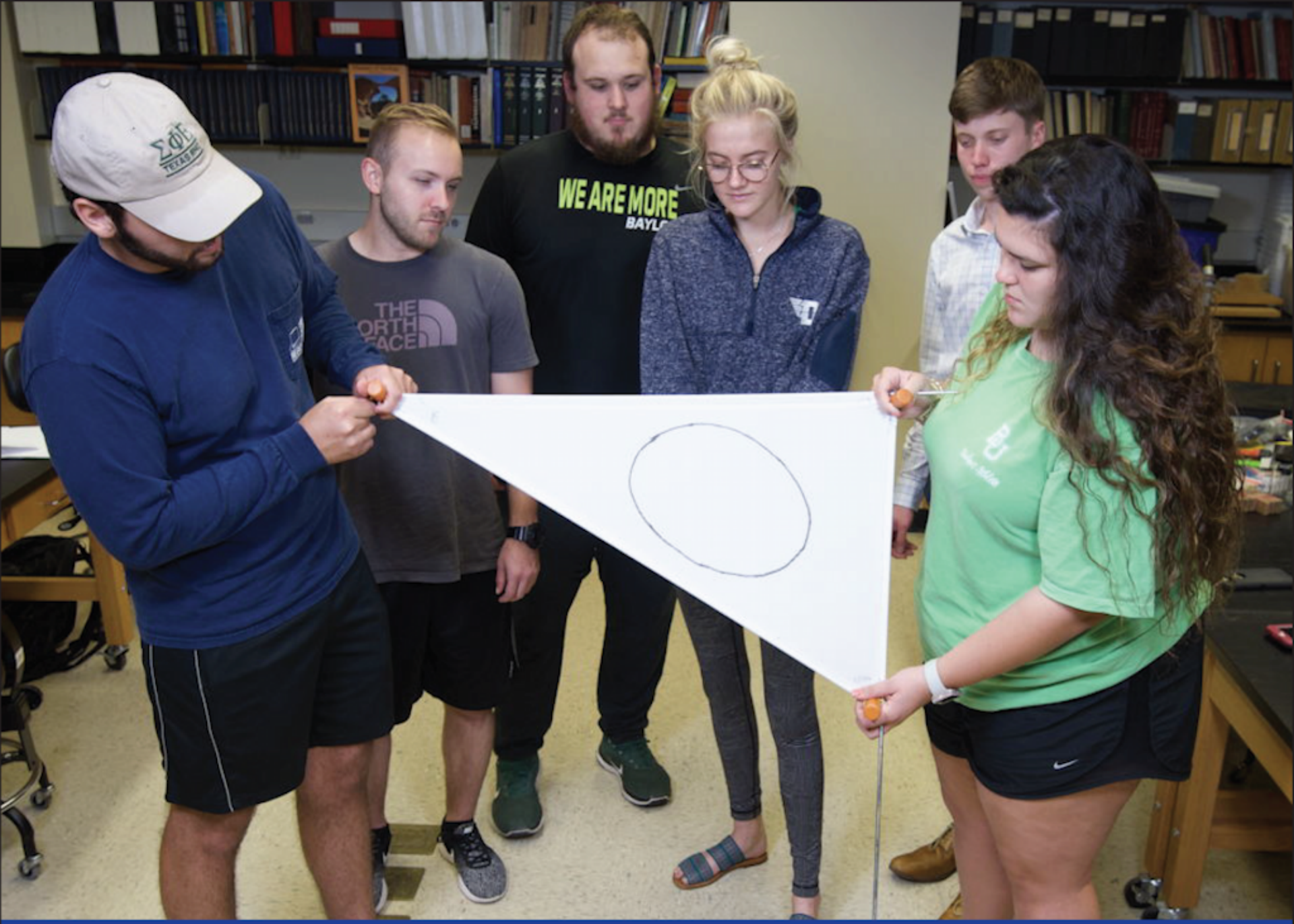


Detail showing the wooden handle and steel dowel

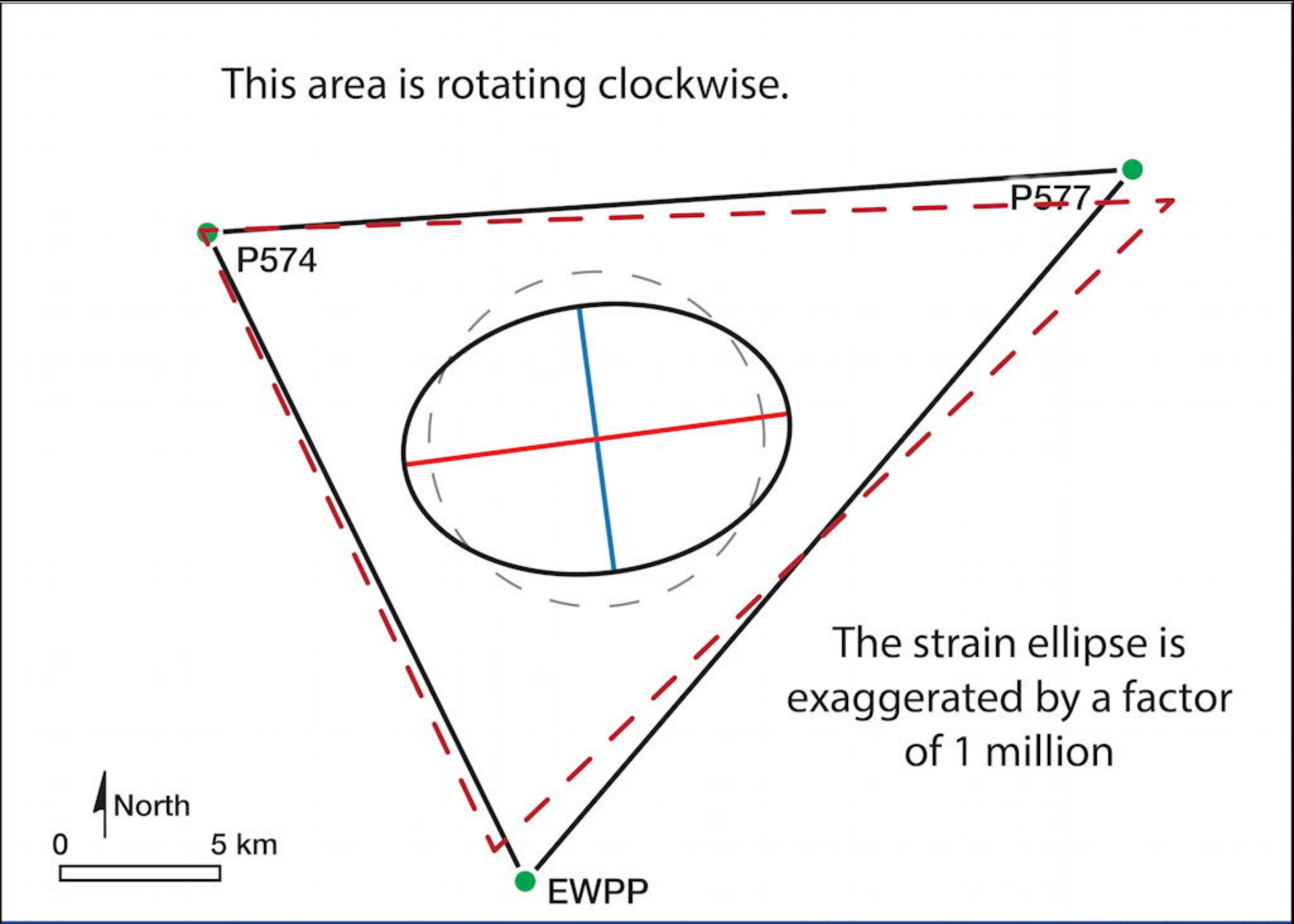


Detail showing the apices of the model triangle

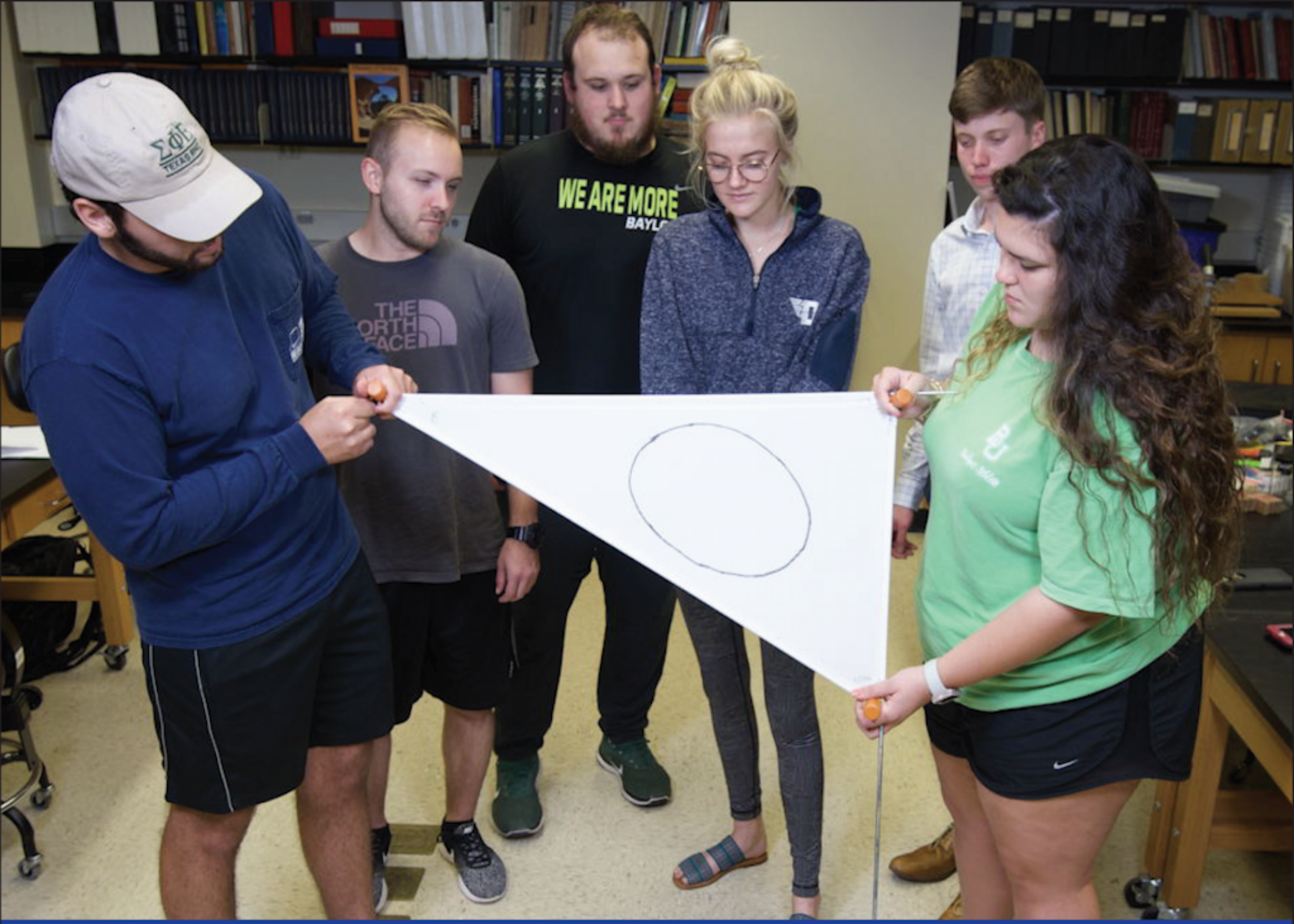
For more information, http://croninprojects.org/TriangleStrainClothModel/



For more information, http://croninprojects.org/TriangleStrainClothModel/



For more information, http://croninprojects.org/TriangleStrainClothModel/



For more information, http://croninprojects.org/TriangleStrainClothModel/