Agenda for week 2 class, today!

First 30-mins (not recorded):

- Assignments feedback?
- Time spent on assignment?
- Forum posts?

40-mins recording (take a break in-between):

- **Housekeeping (10 mins):**
  - Introductions.
  - Grading rubric.
- **Assignment 2 (30 mins):**
  - **Overview:** Overarching summary about the assignment **(5 mins)**
  - **Poll:** What kind of work have you all done with DEMs? How familiar are you with concepts like hill shade, aspect, slope? **(5 mins)**
  - Get started on the assignment, downloading and preparing the files **(10 mins)**
  - **(break)**
  - Presentation **(20 mins)**

(break)
Last 1-hour: breakout rooms (not recorded)

- Read the slides and do a quiz **(30 mins).**

Housekeeping

Grading Rubric:

The following rubric will be used to grade all weekly assignments:

9 - 10 points: Truly original and exceptional work. Displays a solid understanding of relevant concepts, and goes ABOVE AND BEYOND what is required. There are no spelling, grammatical, calculation or unit errors, and the overall appearance and content (e.g., text, graphics, maps, labels and units, tables, charts, references) of the submitted document exhibits an understanding of the principles of design.

8 - 9 points: Very good work. All required elements are included with minimal errors.

5 – 7.5 points: Satisfactory. Your document is missing at least one of the required elements. Prompt is not addressed completely.

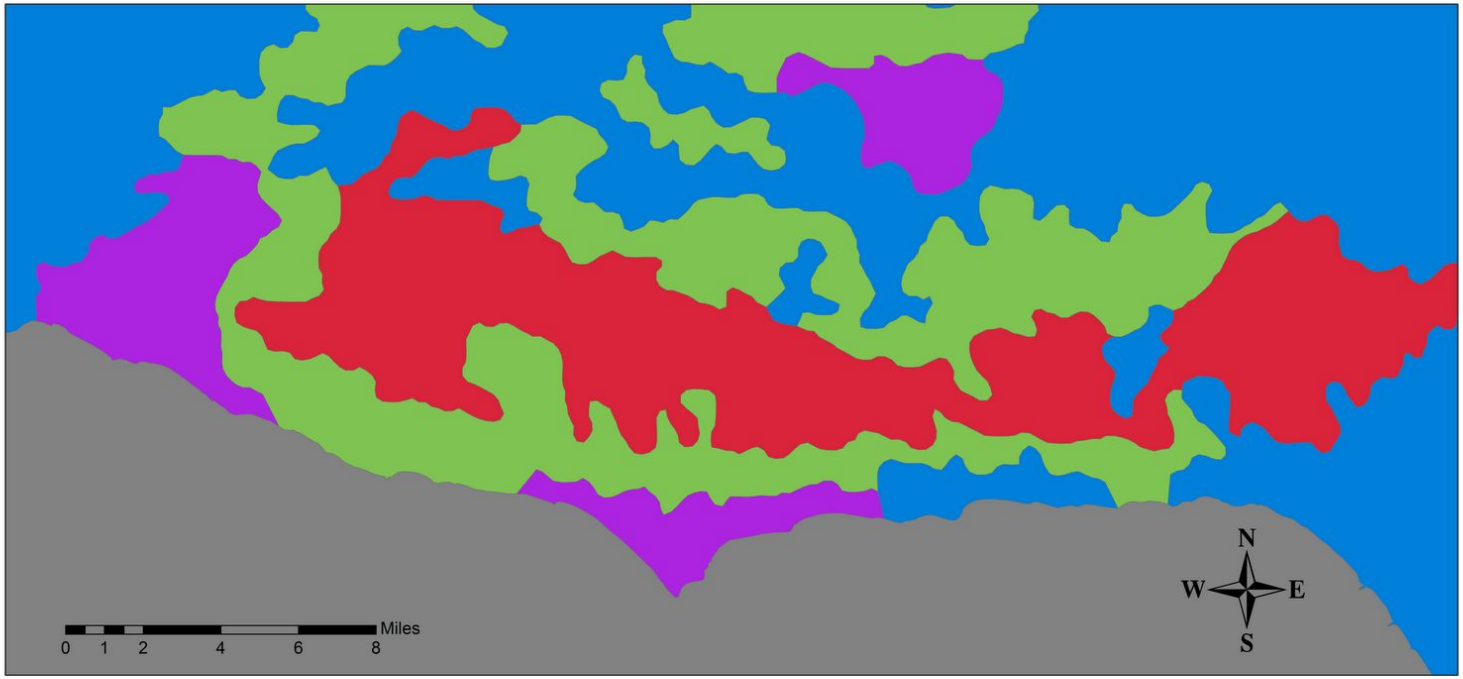
2.5 - 5 points: Unsatisfactory. Your document is missing more than one of the required elements.

0 - 2.5 points: Needs work. Scores obtained due to invalid or incomplete submissions, late work, and/or work that contains serious errors. Invalid PDFs that cannot be opened will receive a zero.

Note: Originality, creativity and a sense of design will also be recognized. While you can discuss with other students, we strongly discourage sharing results. The only exception being the DEM data.


Advanced GIS
Terrain Analysis

SANTA MONICA MOUNTAINS VEGETATION DISTRIBUTION



ANNUAL GRASS

COASTAL SCRUB

URBAN-AGRICULTURE

CHAMISE-REDSHANK CHAPARRAL

Data Source: National Elevation Dataset (NED), USGS

Kelsey Kaszas // UCLA Geography Dept. // April 11, 2012

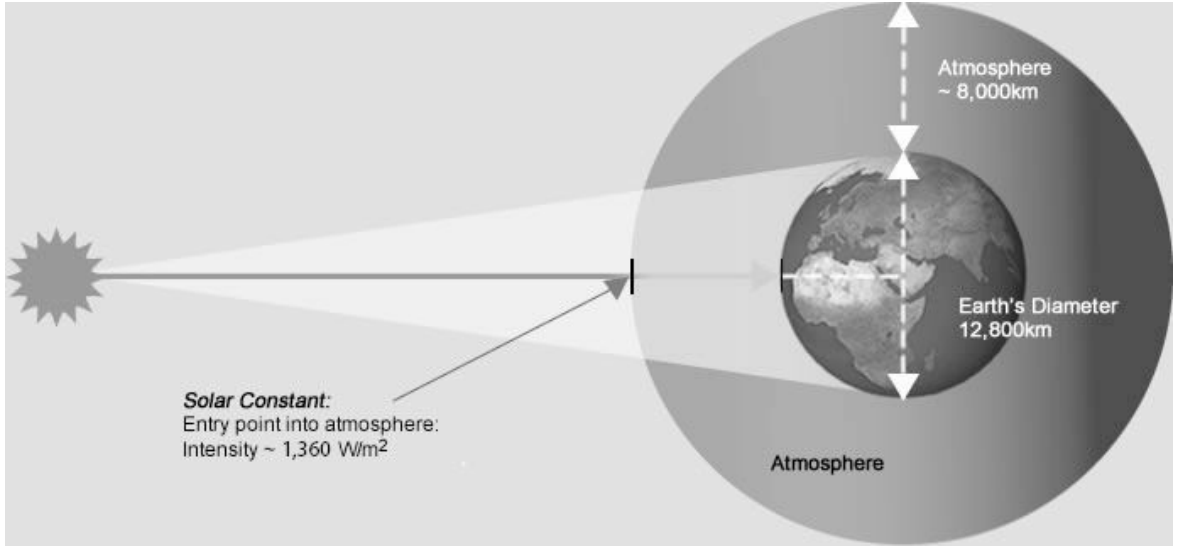

TEDEd
THE SUN'S SURPRISING MOVEMENT
ACROSS THE SKY

Difference between slope, aspect and hillshade

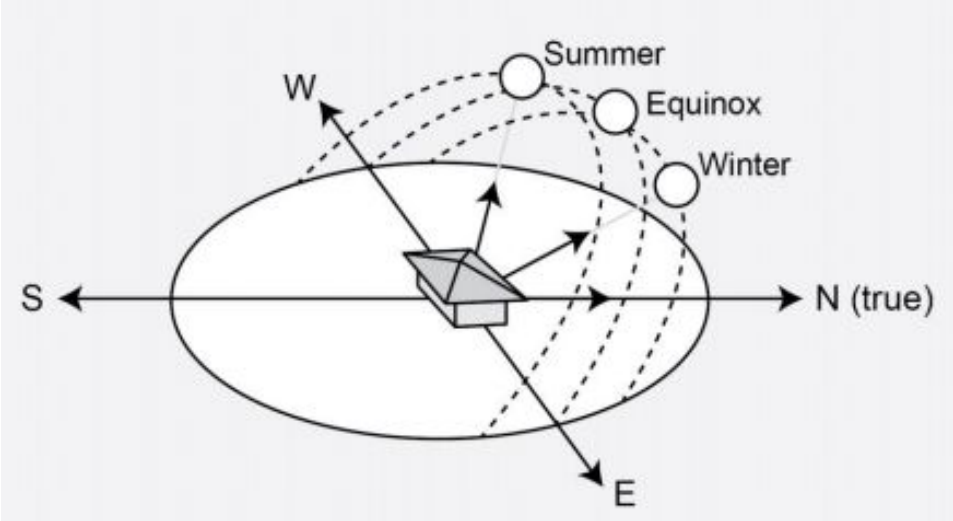
Sun 101

1.3608 ± 0.0005 kW/m2

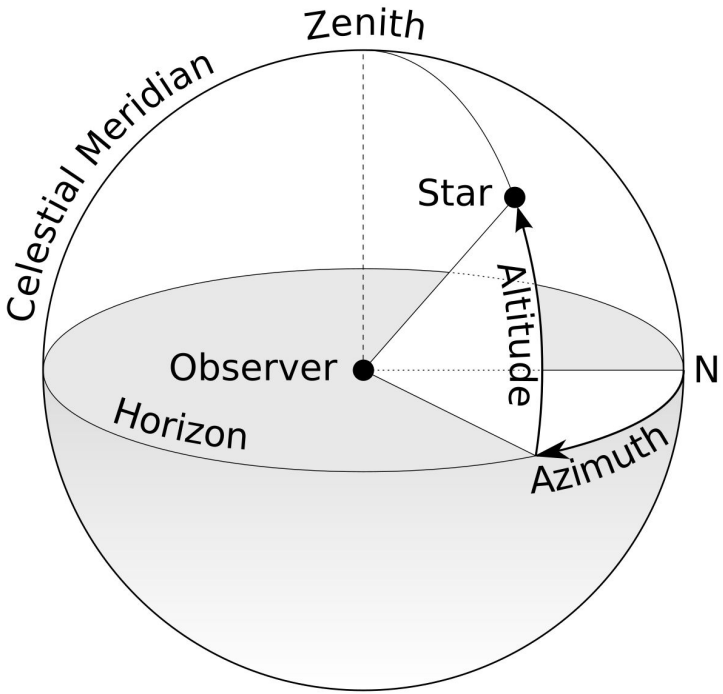
1360.8 ± 0.0005 W/m^2



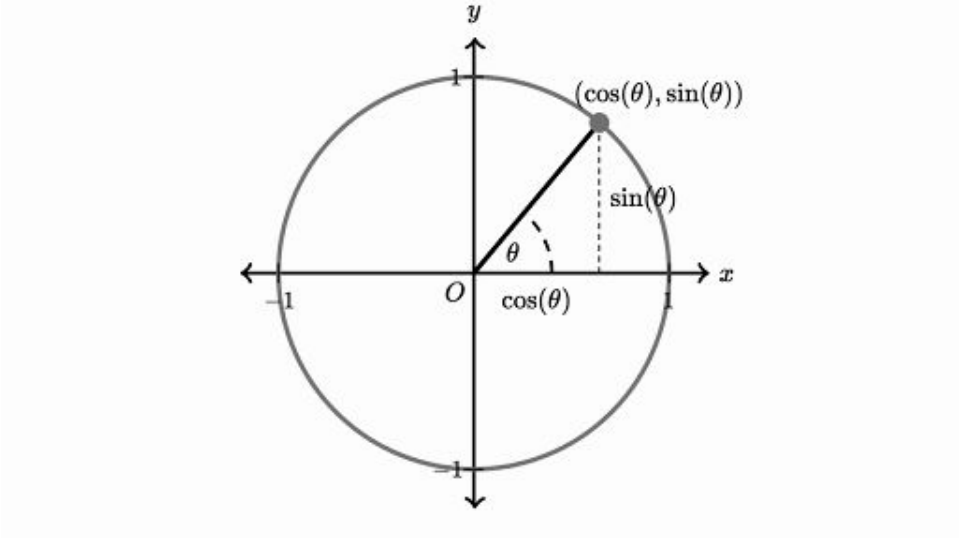
Seasons 101



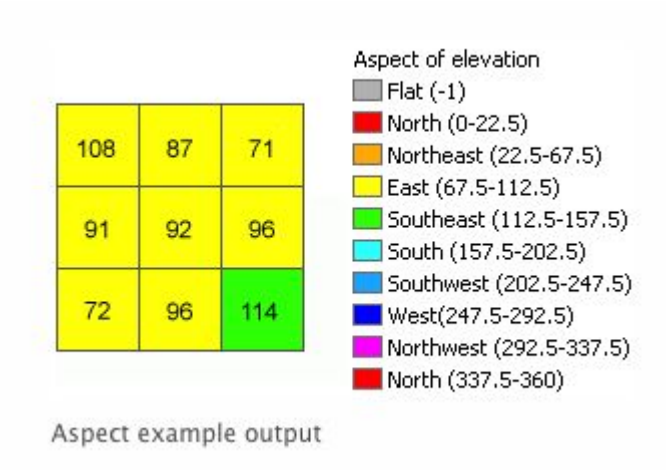
Earth-Sun Geometry 101



Trigonometry 101



Aspect

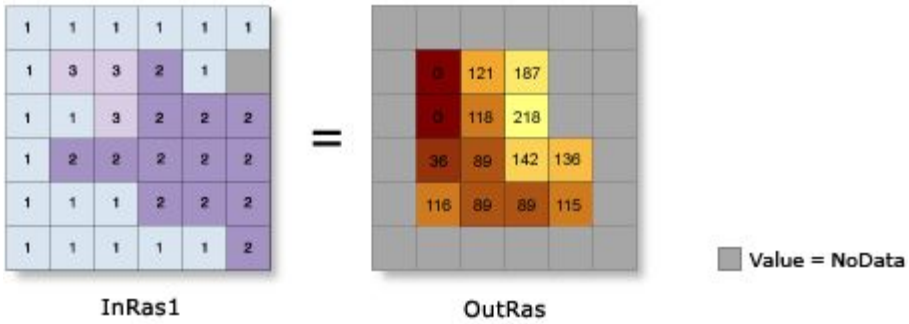


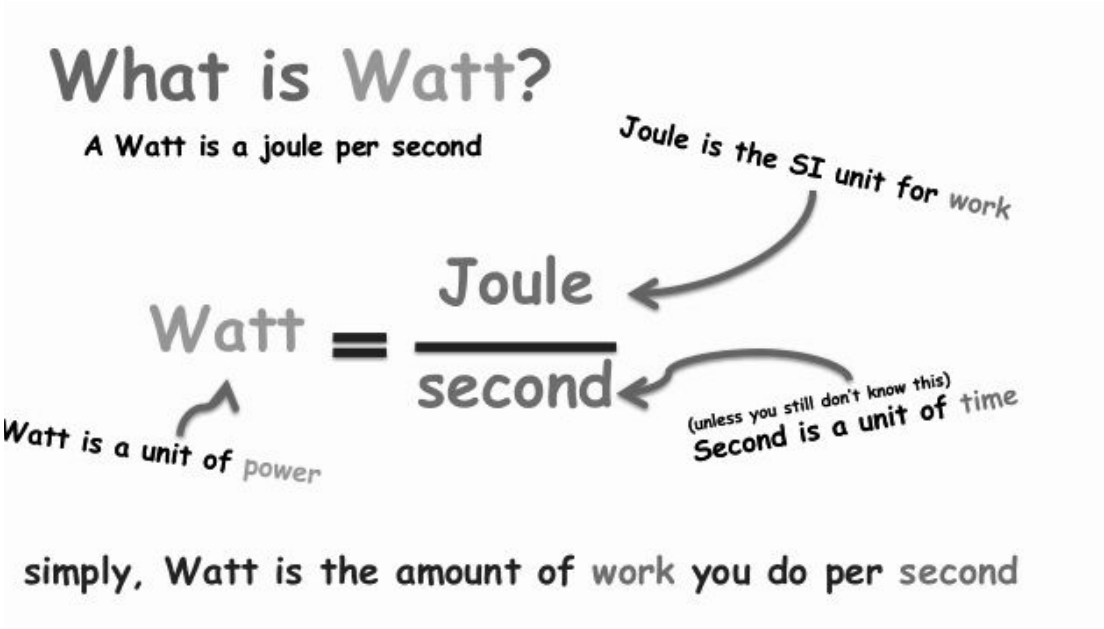
Aspect example output

Aspect algorithm

```
If [dz/dx] is non-zero:
    Aspect_rad = atan2 ([dz/dy], -[dz/dx])
      if Aspect_rad < 0 then
        Aspect rad = 2 * pi + Aspect_rad
  If [dz/dx] is zero:
    if [dz/dy] > 0 then
      Aspect rad = pi / 2
    else if [dz/dy] < 0 then
      Aspect_rad = 2 * pi - pi / 2
    else
      Aspect_rad = Aspect_rad
```

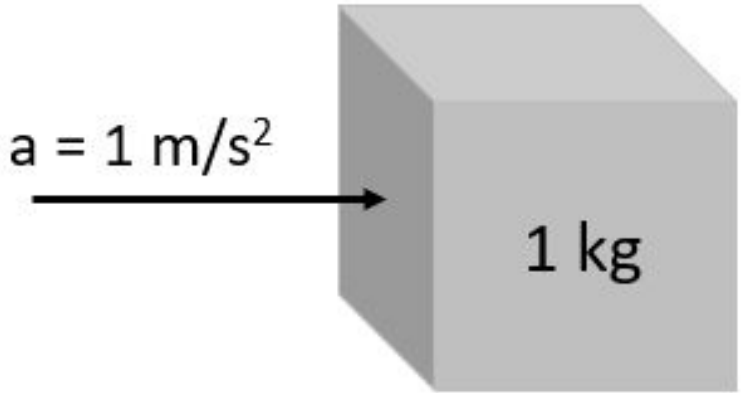
Hillshade


1 1 1 1 1 1
1 3 3 2 1
1 1 3 2 2 2
1 2 2 2 2 2
1 1 1 2 2 2
1 1 1 1 1 2
=
0 121 187
0 118 218
36 89 142 136
116 89 89 115
Value = NoData
InRas1
OutRas


What is Watt?
A Watt is a joule per second
Joule is the SI unit for work
Watt = Joule / second
Watt is a unit of power
(unless you still don't know this)
Second is a unit of time
simply, Watt is the amount of work you do per second

Physics 101
What is one Watt, Joule, Newton

1 N =



$$1\,\mathrm{J} = 1\,\mathrm{N}\cdot\mathrm{m} = 1\,\mathrm{kg}\cdot\frac{\mathrm{m}^2}{\mathrm{s}^2}$$

Terrain Analysis Assignment

A break for 15 mins

Jamboard