

Want more **Rock** or **Navigation**?

2-Day ROCKCRAFT CLASS

April 13-14, 2019
at Joshua Tree National Park

VERTICAL ADVENTURES

ROCK CLIMBING SCHOOL

- 20% Discount for WTC Students
- www.VerticalAdventures.com

(AMP) Advanced Mountaineering Program

advancedmountaineeringprogram.org

SOLD OUT
-Spring 2019

-Fall 2018: Oct. 9 - 27
Registration: May 20, 8am



Upcoming NAVIGATION PRACTICES & CHECKOFFS

- April 27, 28
- May 18
- June 15, 16
- September 29
- November 2
- November 16, 17
- December 8

www.angeles.sierraclub.org/activities

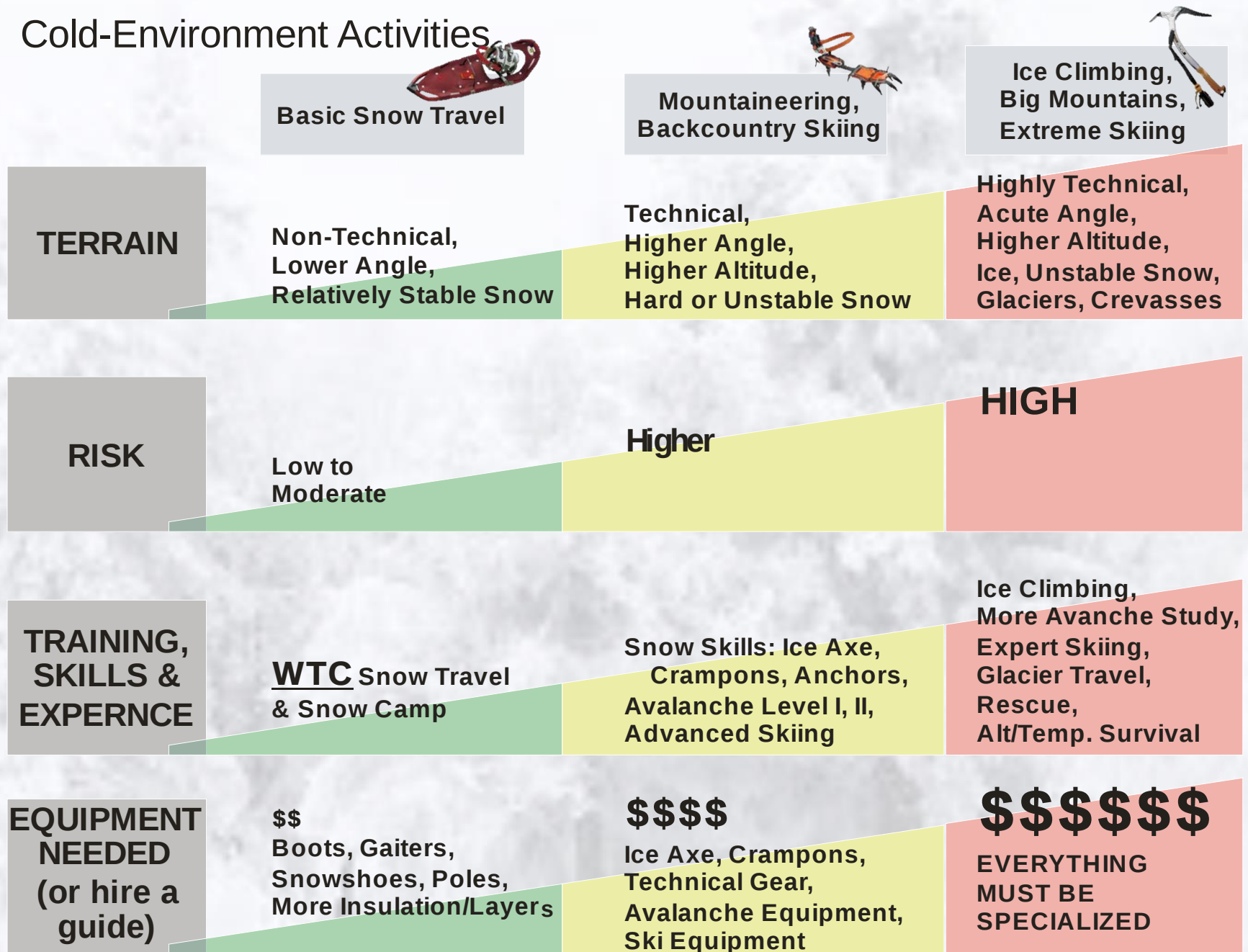


Snow Travel

Anne Marie
Richardson

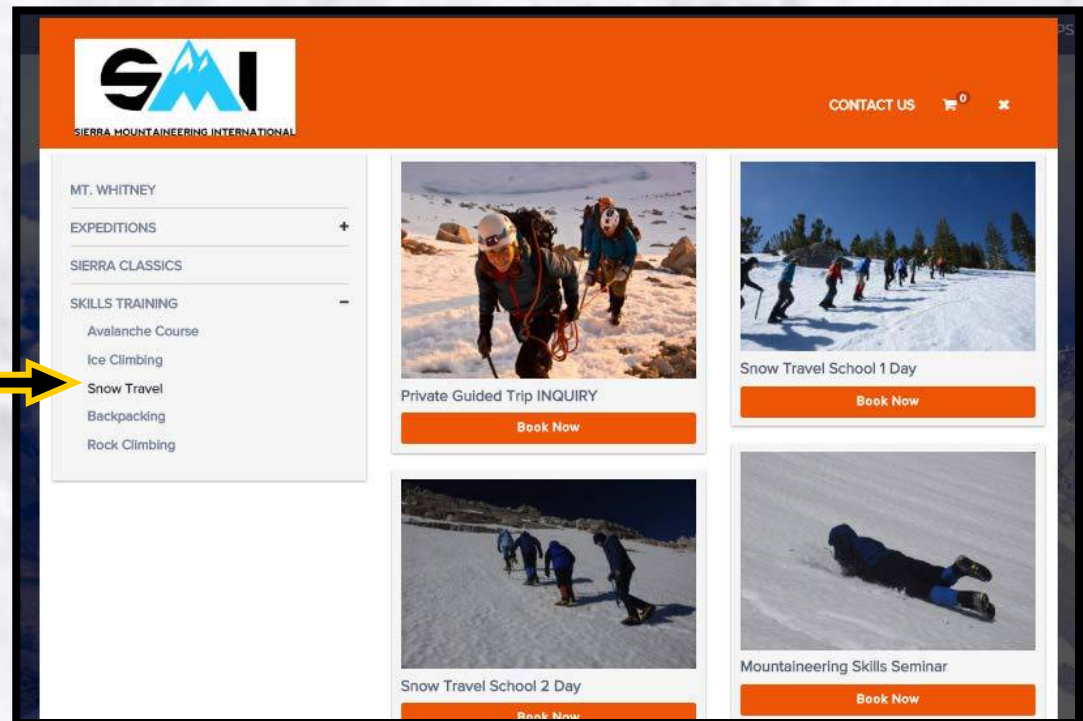


Cold-Environment Activities



Upcoming Snow Skills Class

- **APRIL 27 - 28, 2019**
- SMI – Sierra Mountaineering International
 - Go to: **SierraMountaineering.com**
 - Select: **BOOK NOW**



Basic Gear

- Trekking poles with baskets
- Snowshoes
- Shovel



Basic Gear

- Trekking poles with baskets
- Snowshoes
- Shovel



Basic Gear

- Trekking poles with baskets
- Snowshoes
- Shovel



Clothing

**Snow Boots
& Gaiters**

Gloves & mittens

Head wear

Layers:

- Base / Wicking
- Insulation
- Shells

Camp clothes



*Mt Shasta
Courtesy Pat McKusky*

Clothing

**Snow Boots
& Gaiters**

Gloves & mittens

Head wear

Layers:

- Base / Wicking
- Insulation
- Shells

Camp clothes



Clothing

**Snow Boots
& Gaiters**

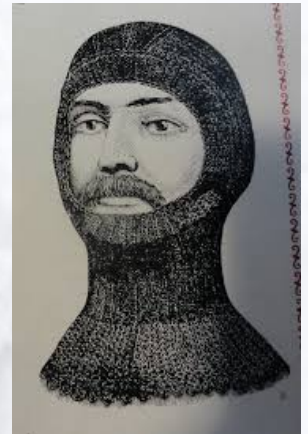
Gloves & mittens

Head wear

Layers:

- Base / Wicking
- Insulation
- Shells

Camp clothes



Clothing

**Snow Boots
& Gaiters**

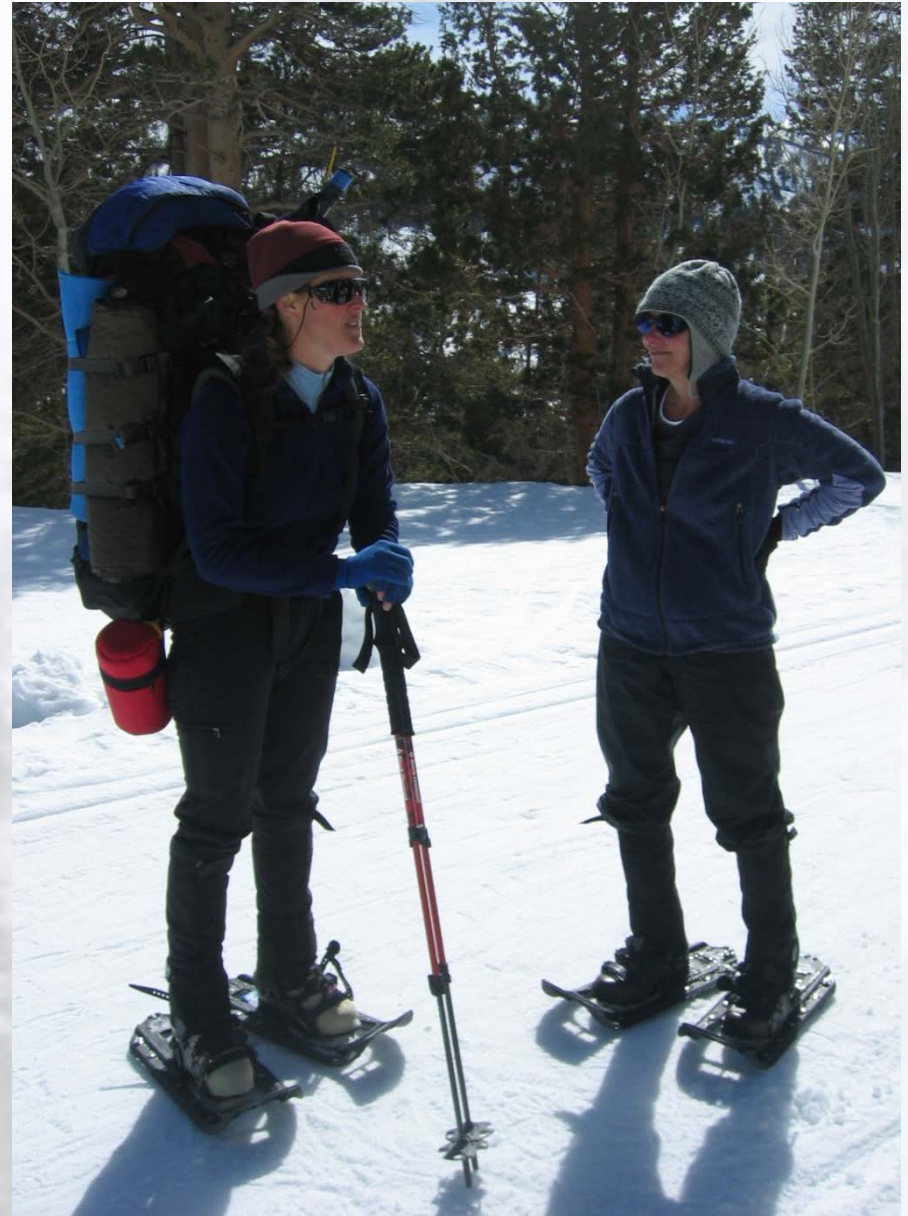
Gloves & mittens

Head wear

Layers:

- Base / Wicking
- Insulation
- Shells

Camp clothes



Clothing

**Snow Boots
& Gaiters**

Gloves & mittens

Head wear

Layers:

- Base / Wicking
- Insulation
- Shells

Camp clothes



SUN PROTECTION

- Sunblock,
- More Sunblock !



EYE PROTECTION

- Good, Dark Sunglasses
- Goggles



Dan took off his glasses



The next day



*Dan Richter on Mt Shasta May 28, 1994
Dan Richter Collection*

Snowpack is Constantly Changing

AIR:water Δ air:**WATER**

Consolidation

- freeze/thaw
- warm/cold temps
- sun exposure/aspect

Compaction

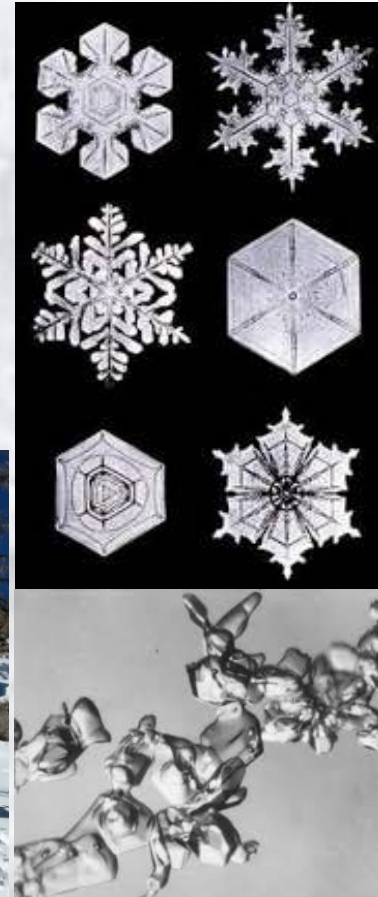
- settling and pressure

Wind

- direction
- speed
- loading

Precipitation

Layers



Snowpack is
Constant

**Determine
the Safest &
Most Efficient
Route**

Pressure

and
-direction
-speed
-loading

Precipitation

Layers



Navigation & Routefinding in Snow

Hidden dangers:
streams, voids,
buried obstacles,
ice under snow

Avoid:
bad runouts,
avalanche slopes,
cornices,
rockfall,
moats

**Trails are
not visible**

**In winter plan for
shorter days**



*Dan Richter and Kathy Rich below Treasure Col June 22, 2008
Courtesy Kathy Rich*

What's a Runout ??



What's a Cornice ??



Rockfall ??



What's a Moat ??



Navigation & Routefinding in Snow

Hidden dangers:
streams, voids,
buried obstacles,
ice under snow

Avoid:
bad runouts,
avalanche slopes,
cornices,
rockfall,
moats

**Trails are
not visible**

**In winter plan for
shorter days**





5 Avalanche Warning Signs

New Snow

**Rapidly
Rising
Temperature**

**Recent
Strong
Wind**

**Avalanche
Activity**

**Cracking &
Whoomping**



Resources

Freedom of the Hills, 9th Ed.

WEATHER.gov Nat. Weather Svc.

Kurt Wedberg

Sierra Mountaineering International
www.sierramountaineering.com

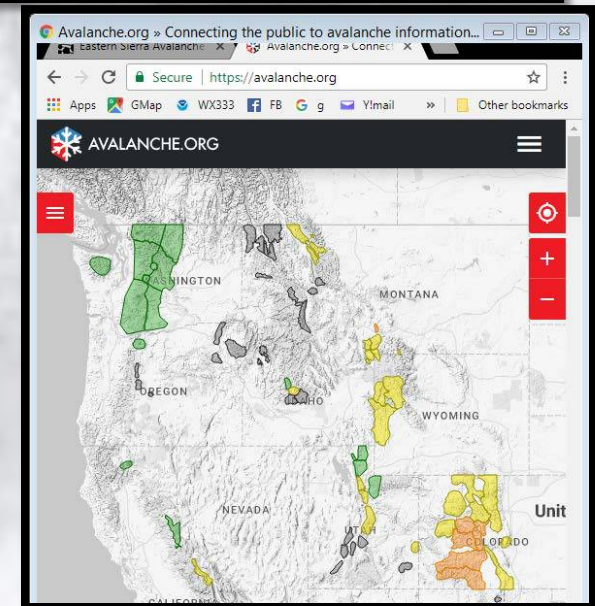
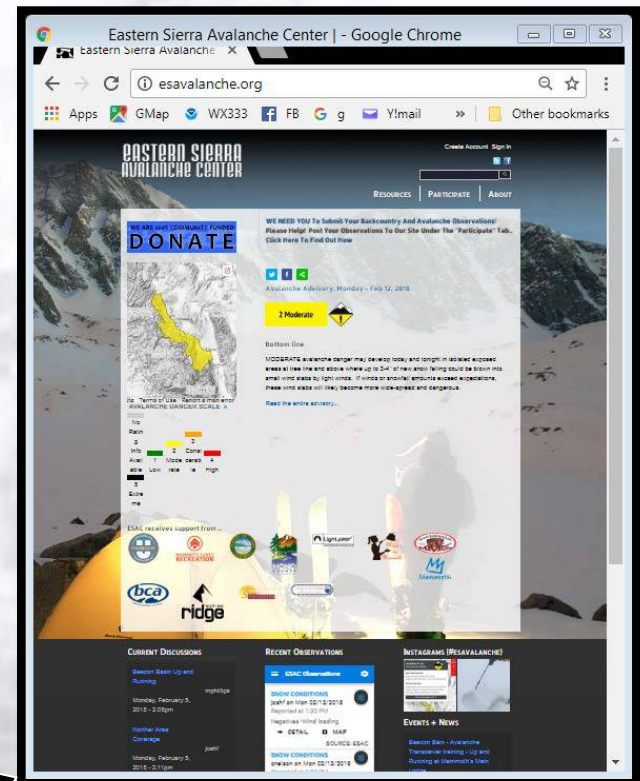
Nile Sorenson

Sierra Club LTC Snow Practices/Check Offs
www.angeles.sierraclub.org/LTC

Eastern sierra Avalanche center
www.esavalanche.org

Avalanche.org
www.avalanche.org

Many more resources are available



Avalanche Awareness Basics

Most common during a storm and the day after

Most avalanches occur on slopes 30 to 45 degrees

Always calculate slope angle



Avalanche Awareness Basics

Most common during a storm and the day after

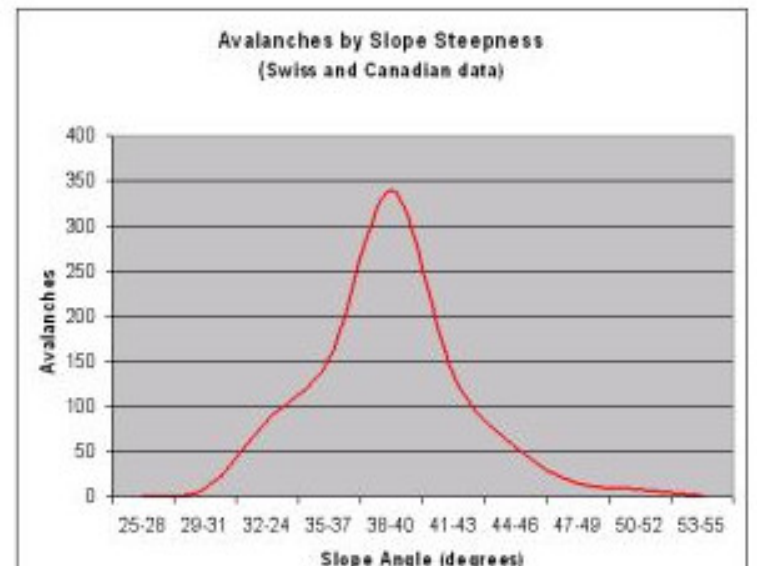
Most avalanches occur on slopes 30 to 45 degrees

Always calculate slope angle

Avalanches by Slope Steepness



- Slope angles $> 40^\circ$
 - Snow tends to slough off
 - Also less skied so less accidents
- Slope angles $< 25^\circ$
 - Generally safe
 - But less interesting ☹
 - May still be threatened from slopes above



Avalanche Awareness Basics

Most common during a storm and the day after

Most avalanches occur on slopes 30 to 45 degrees

Always calculate slope angle



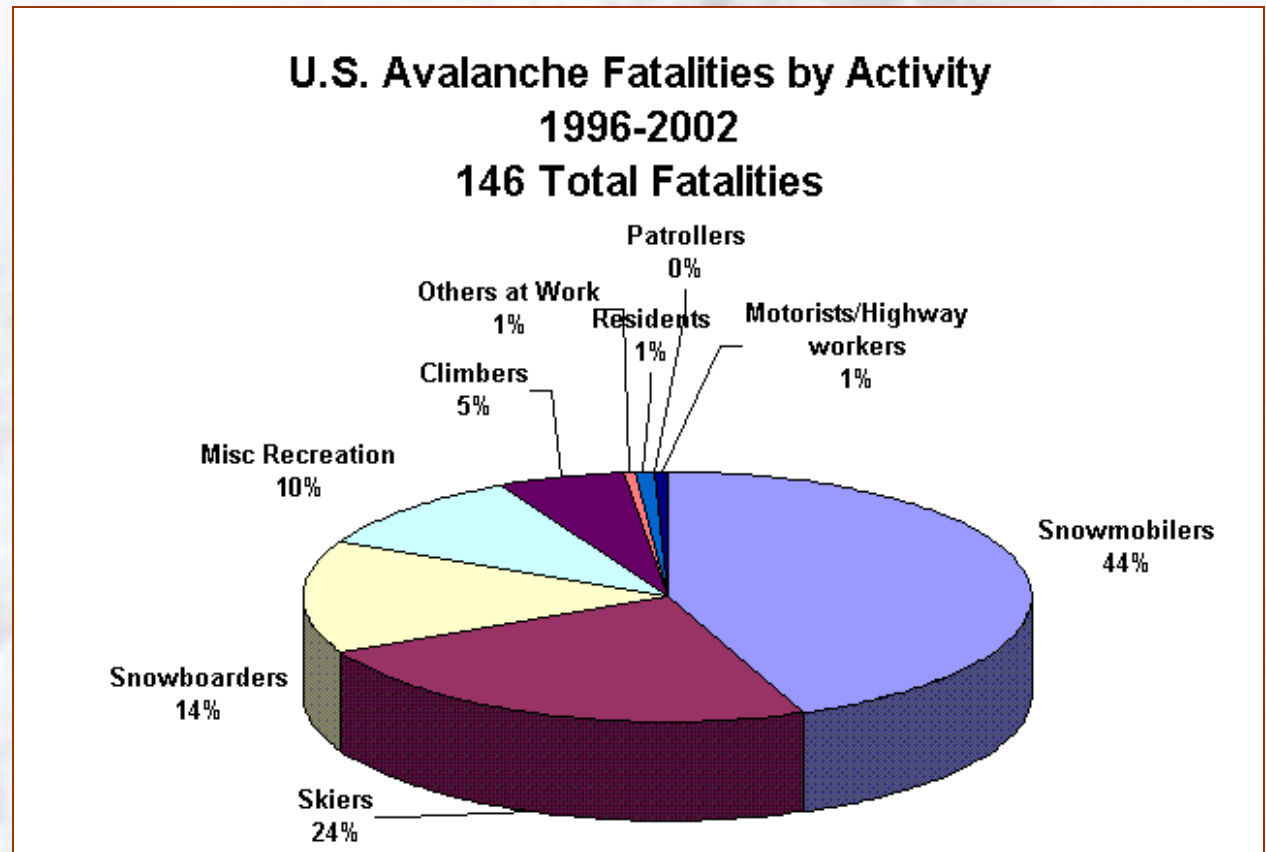
Avalanche Avoidance

**Travel and Camp beyond the
potential runout of an
avalanche (23 degrees)**



Avalanche Awareness Basics

More than 90 % of avalanches involving injury or death were triggered by victim or someone in the victims party.



Basic Techniques

Post holing

Kick stepping – ascending

Plunge stepping – descending

Rest step

Staying in balance

Switchback transitions

Leading and following

Using trekking poles in cross-body position to traverse and ascend



Basic Techniques

Post holing

Kick stepping – ascending

Plunge stepping – descending

Rest step

Staying in balance

Switchback transitions

Leading and following

Using trekking poles in cross-body position to traverse and ascend



Basic Techniques

Post holing

Kick stepping – ascending

Plunge stepping – descending

Rest step

Staying in balance

Switchback transitions

Leading and following

Using trekking poles in cross-body position to traverse and ascend



Basic Techniques

Post holing

Kick stepping – ascending

Plunge stepping – descending

Rest step

Staying in balance

Switchback transitions

Leading and following

Using trekking poles in cross-body position to traverse and ascend



Basic Techniques

Post holing

Kick stepping – ascending

Plunge stepping – descending

Rest step

Staying in balance

Switchback transitions

Leading and following

Using trekking poles in cross-body position to traverse and ascend



Basic Techniques

Post holing

Kick stepping – ascending

Plunge stepping – descending

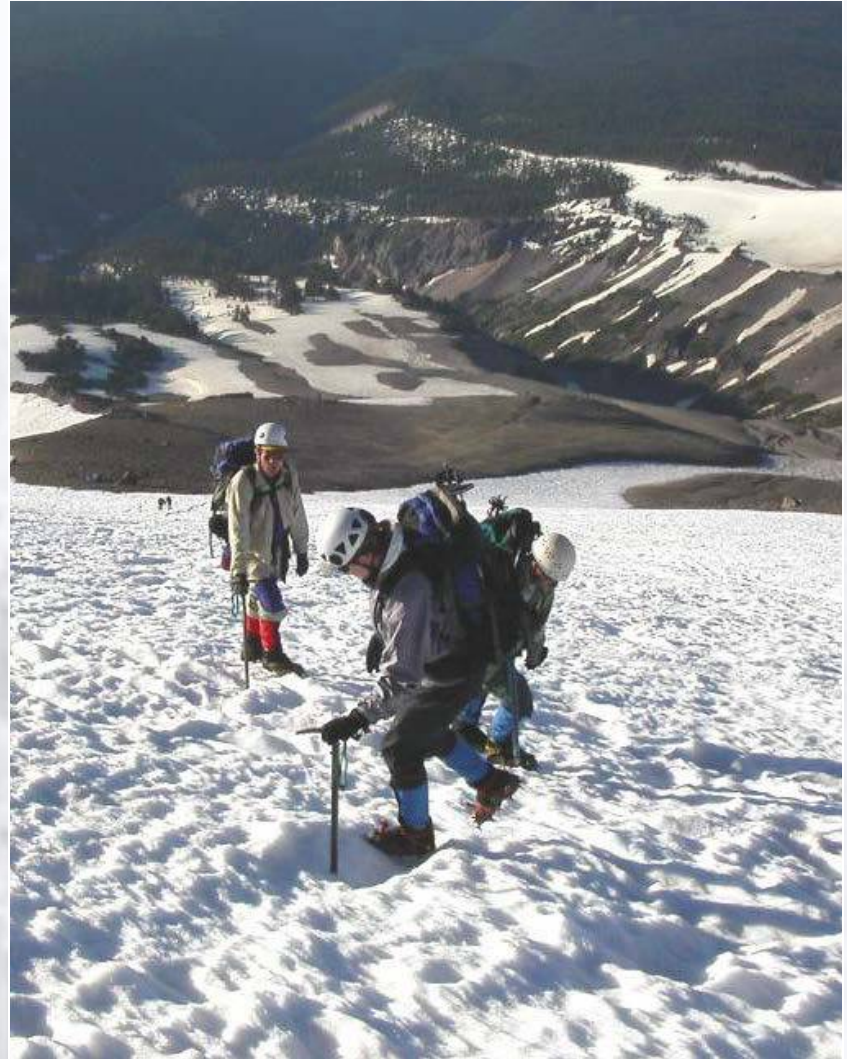
Rest step

Staying in balance

Switchback transitions

Leading and following

Using trekking poles in cross-body position to traverse and ascend



Basic Techniques

Post holing

Kick stepping – ascending

Plunge stepping – descending

Rest step

Staying in balance

Switchback transitions

Leading and following

Using trekking poles in cross-body position to traverse and ascend



Basic Techniques

Post holing

Kick stepping – ascending

Plunge stepping – descending

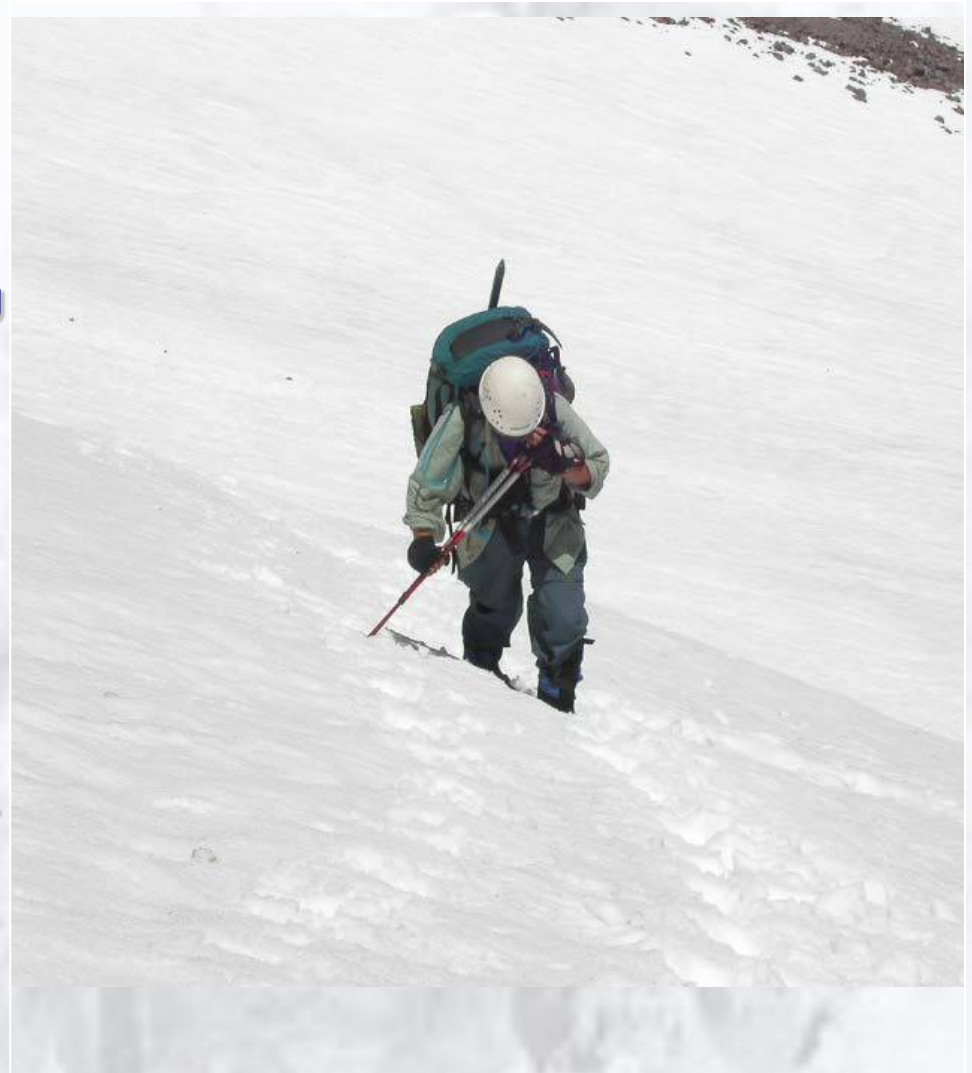
Rest step

Staying in balance

Switchback transitions

Leading and following

Using trekking poles in cross-body position to traverse and ascend



More Advanced – Steep or Firm Snow

Glissading

Stay in Control!



More Advanced – Steep or Firm Snow

Glissade

Stay in Control!



Travel on Snow is Fun

WTC Snow Camp

Plan to go on trips

Get out with friends

Keep on learning

