



Tidal Datums and Height Transfer

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11 June 2008

Tidal Levels (Tidal Planes)

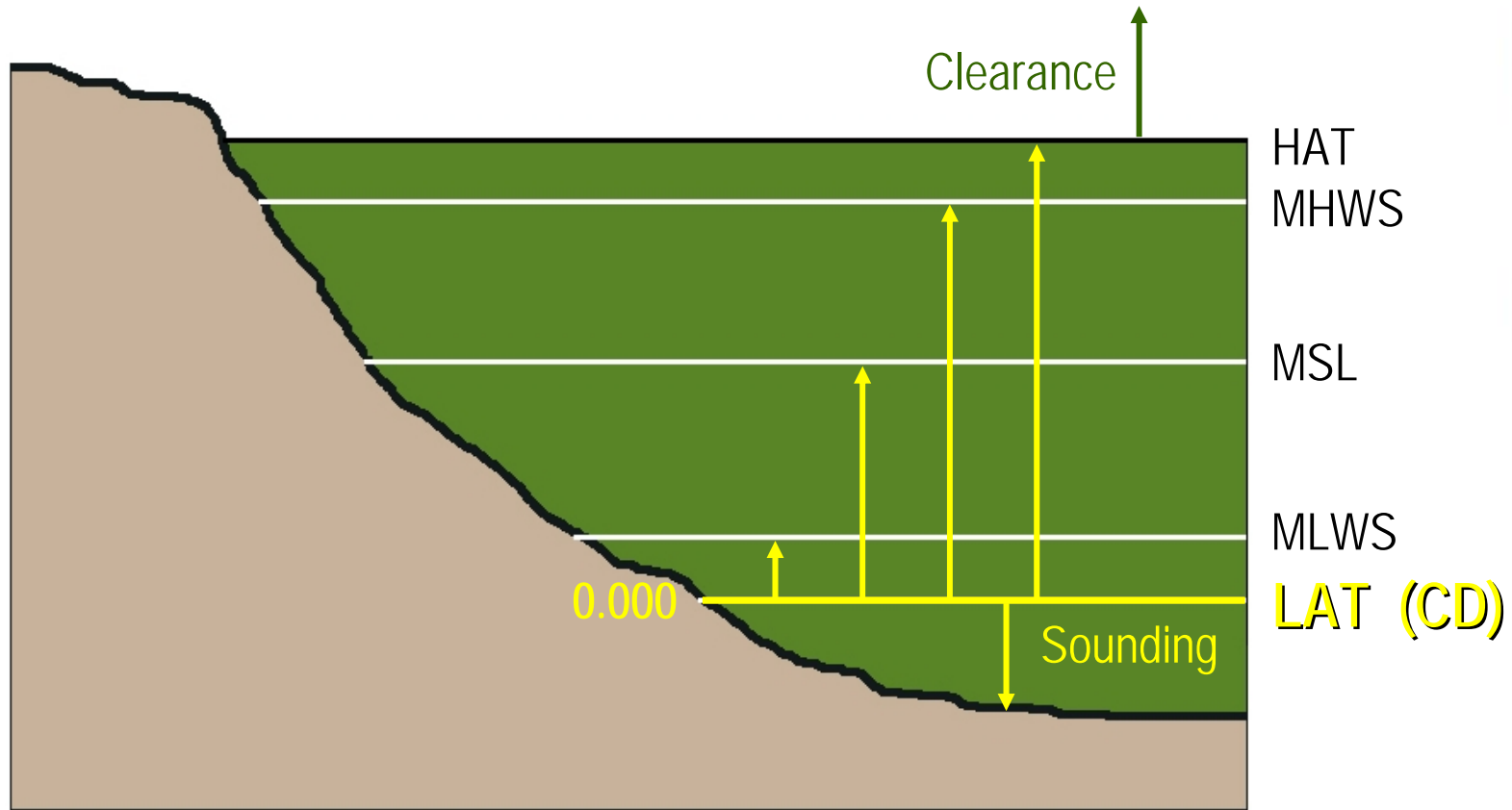


- An elevation, or plane, defined for a certain phase of the tide, eg spring, neap tide
- Location specific
- Datum point fixed at best estimate

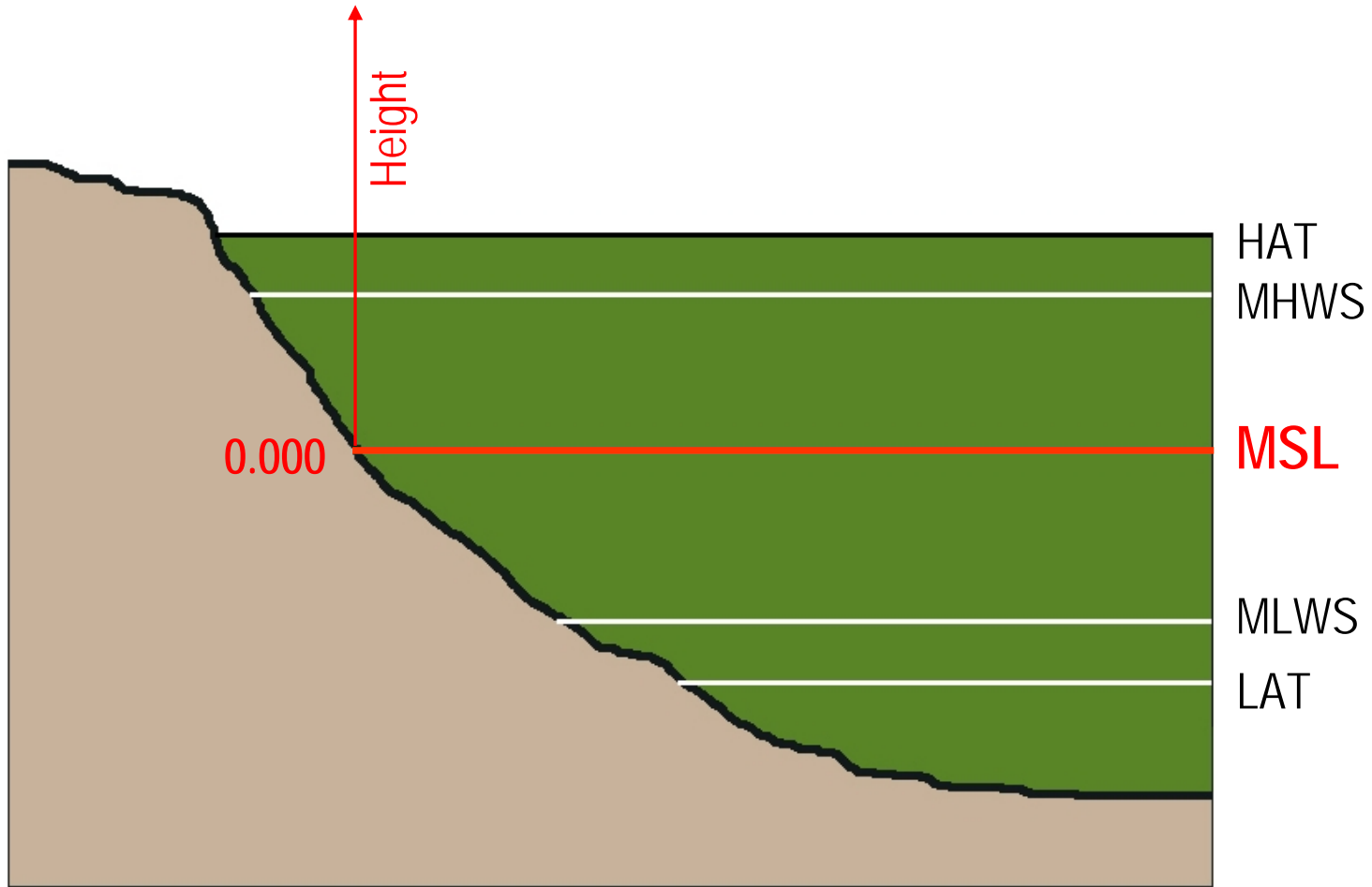
Tidal Levels



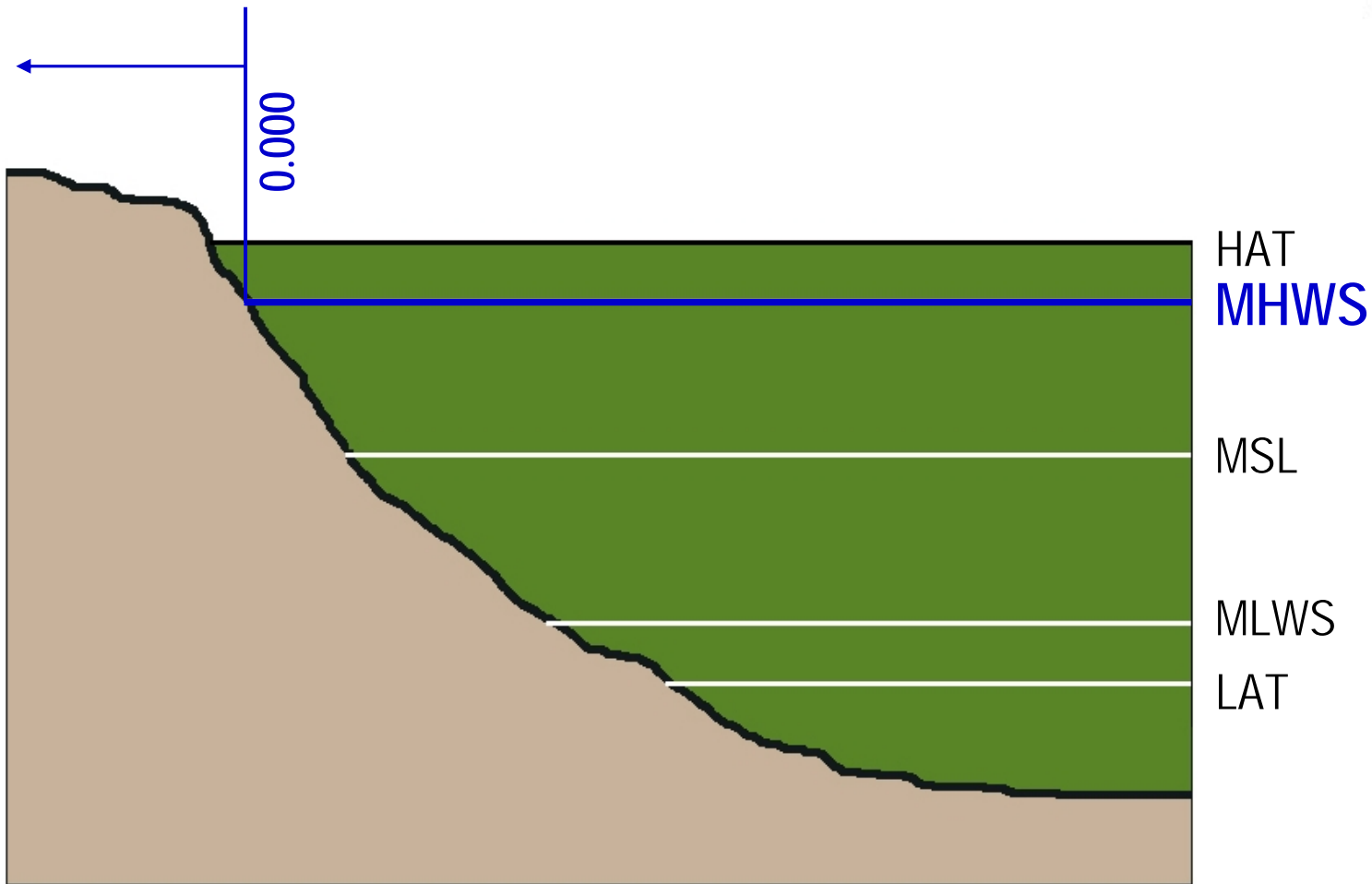
Mariners, Hydrography



Mapping



Cadastral



Establishing Tidal Levels



- Full independent determination
- Transfer existing datum



Rigorous Procedure



- Set up sea level recorder, tide pole
- Measure sea level at regular intervals
- Minimum 1 month
- Harmonic analysis - define MSL, constituents
- Use MSL and constituents to define tidal levels

Datum Transfer (Range Ratio)

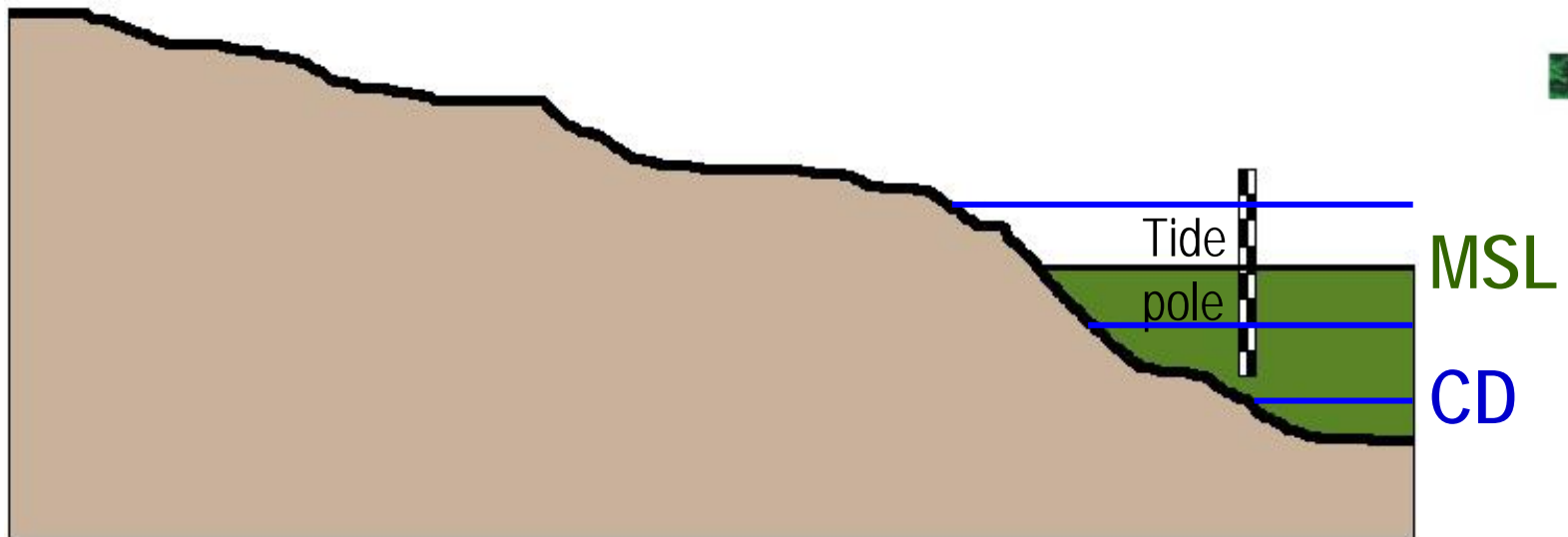


- Reference station with similar tidal regime
- Set up local reference system (tide pole)
- Two days – heights of 3 HWs, 4 LWs
- Local tidal level(s) in terms of pole readings

Tidal Levels



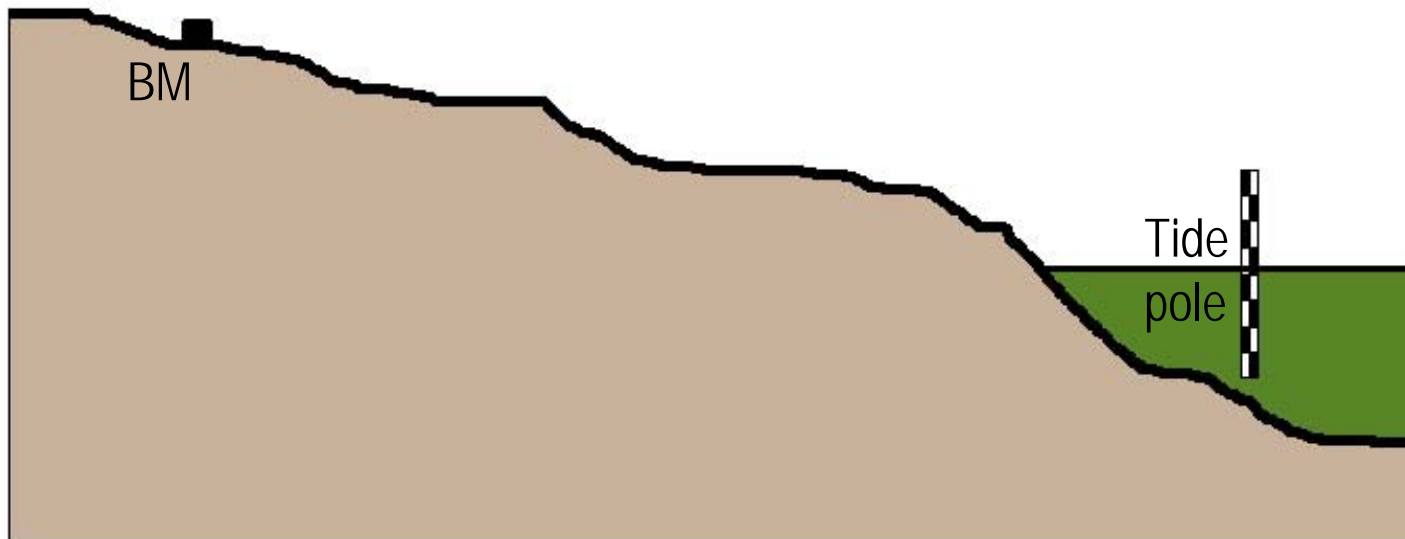
- Now have tidal levels in terms of tide pole
- But: tide pole vulnerable



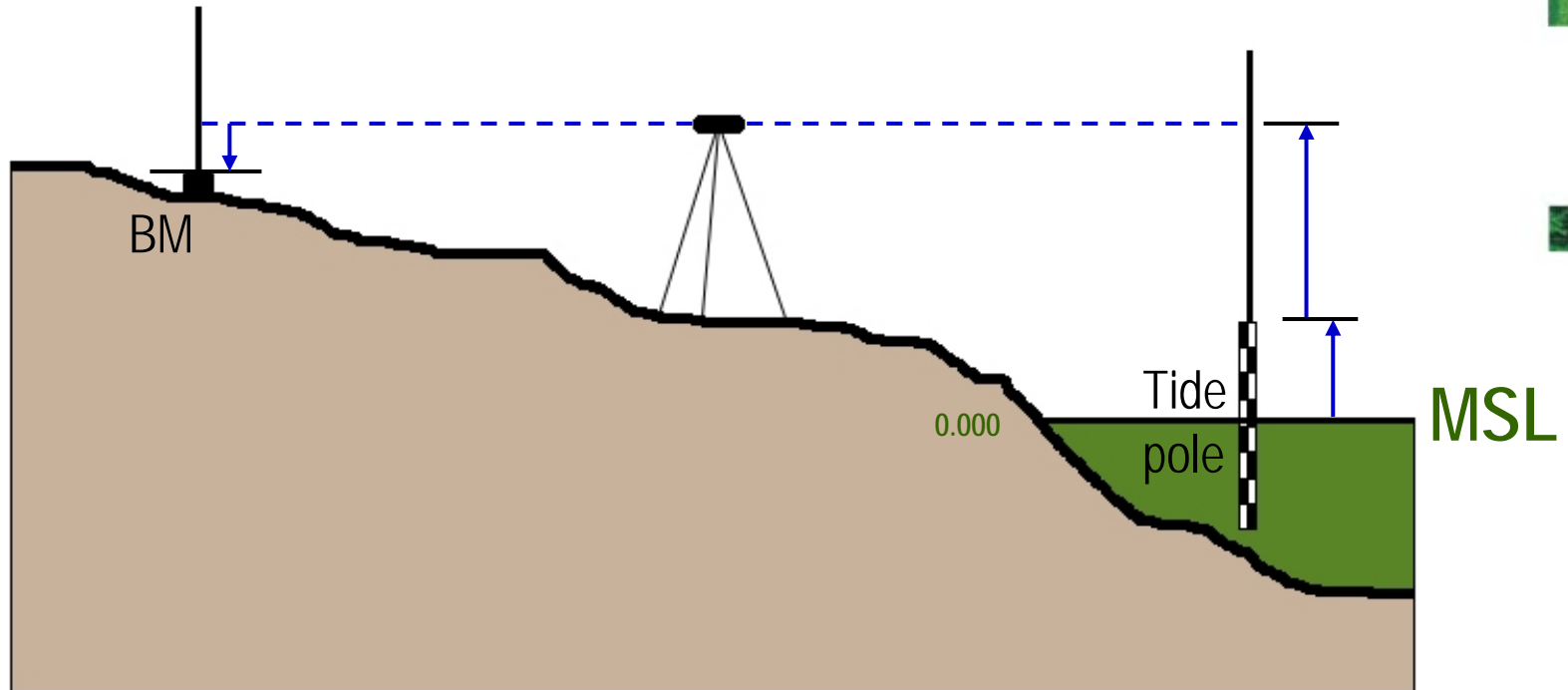
Bench Marks



- Establish bench marks ashore, ideally 3



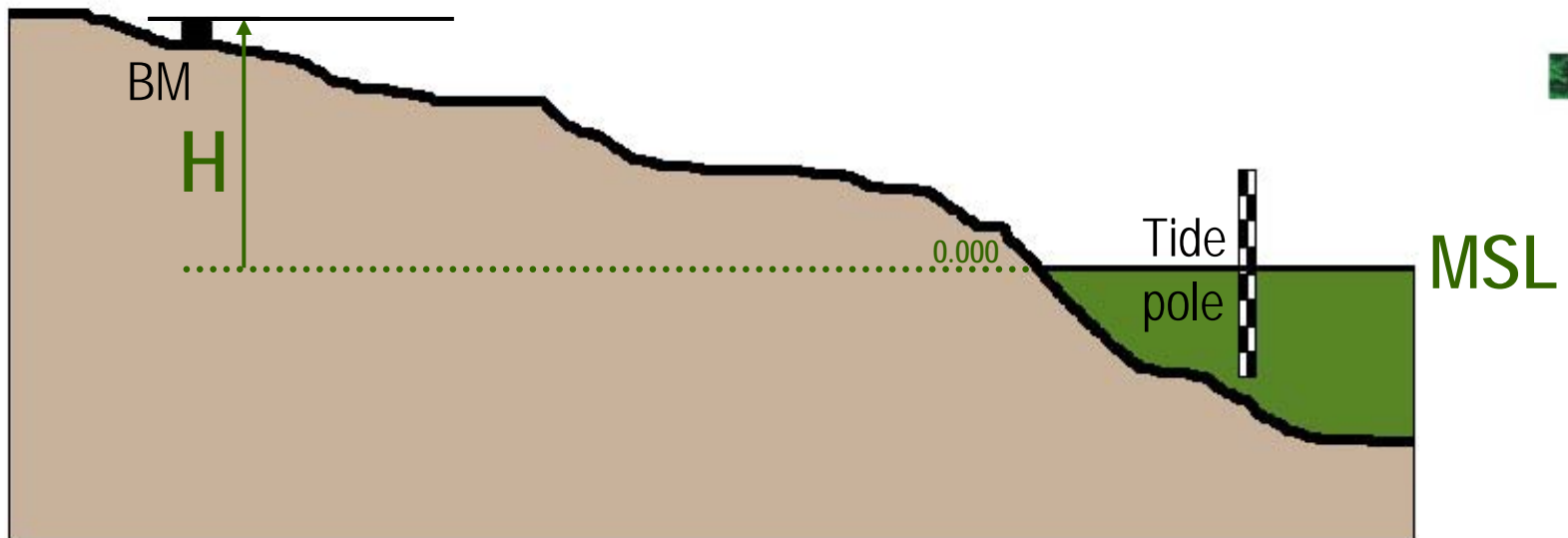
Transfer Height To BM



Height for BM

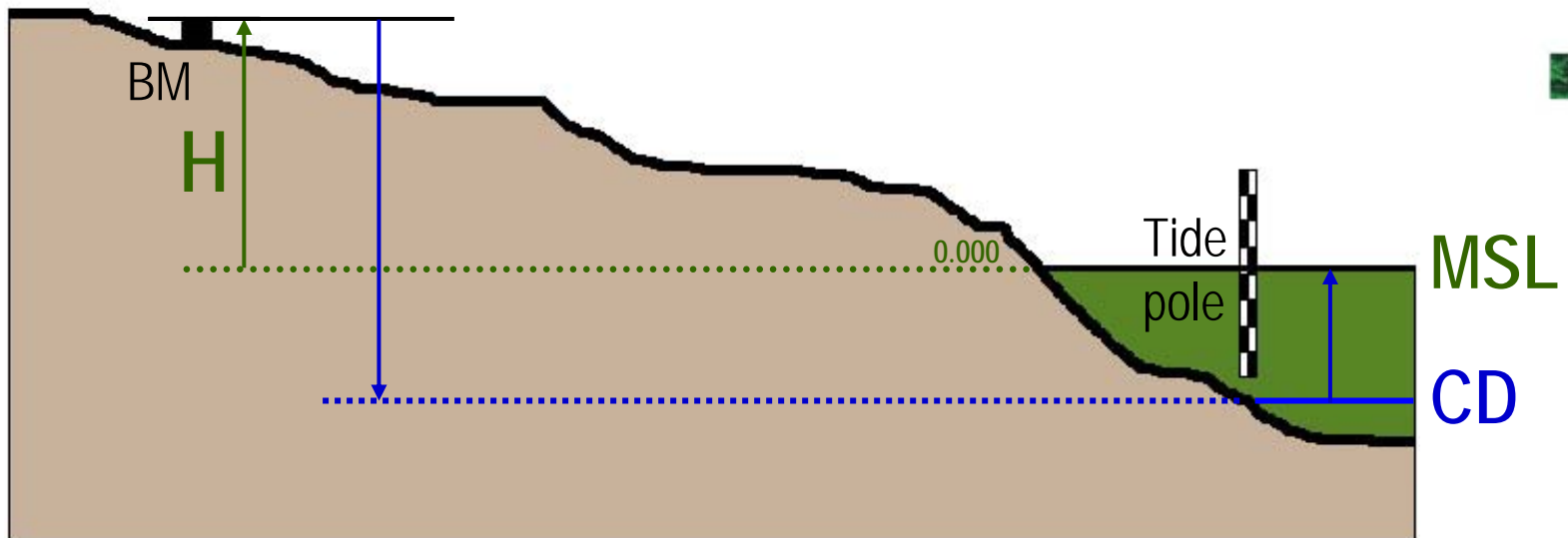


- BM height in terms of the MSL tidal plane

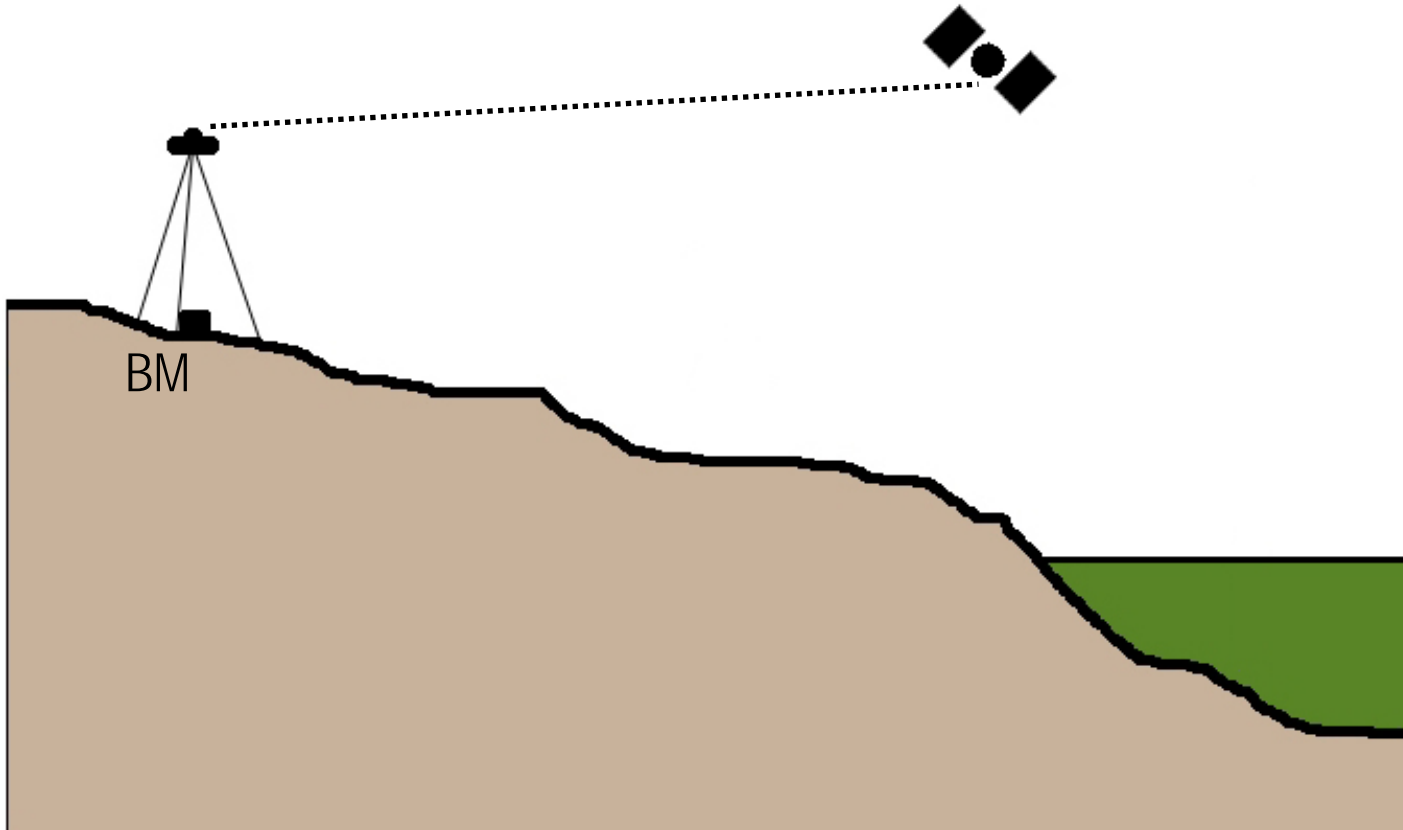


Height for BM

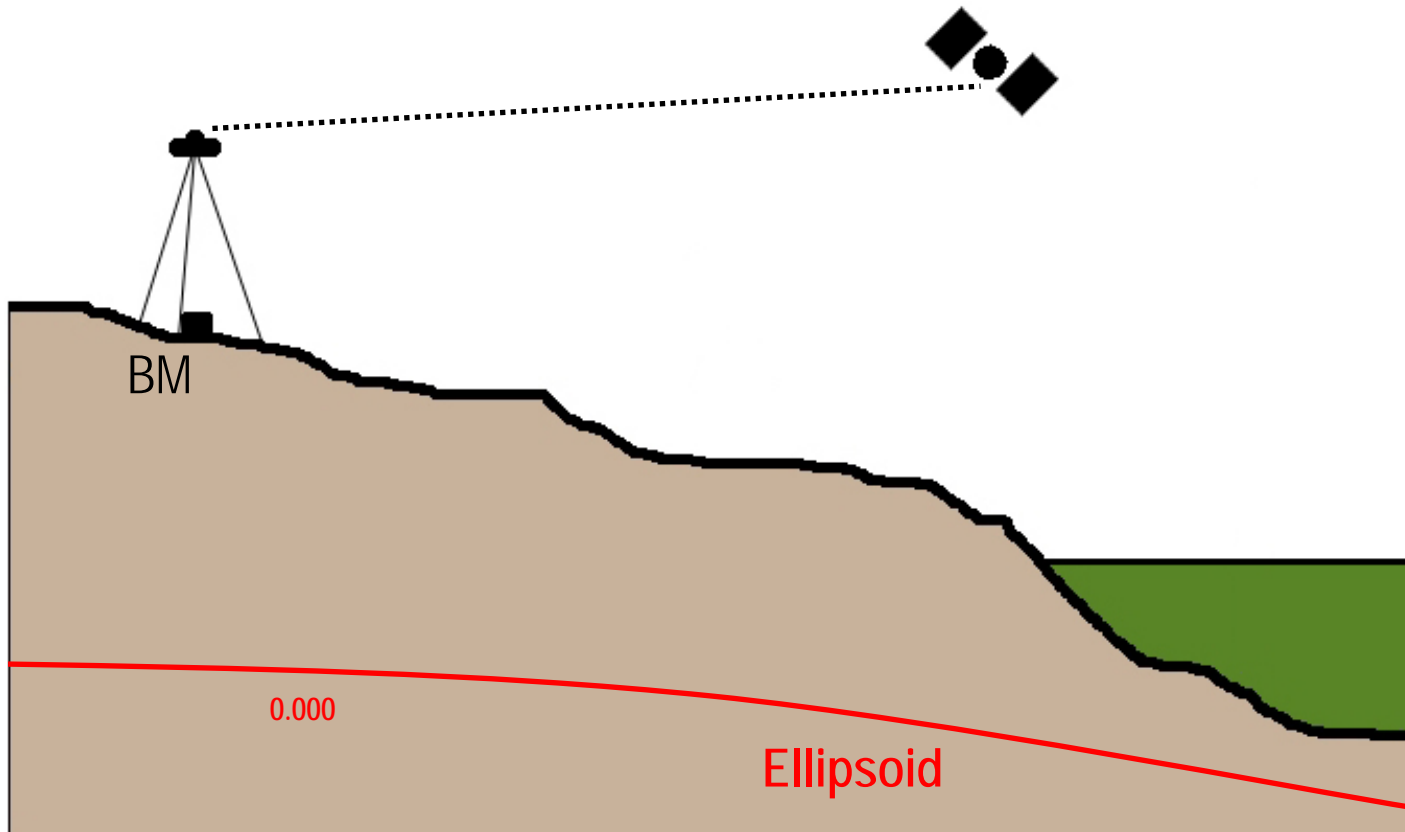
- BM height in terms of the MSL tidal plane
- CD relative to BM



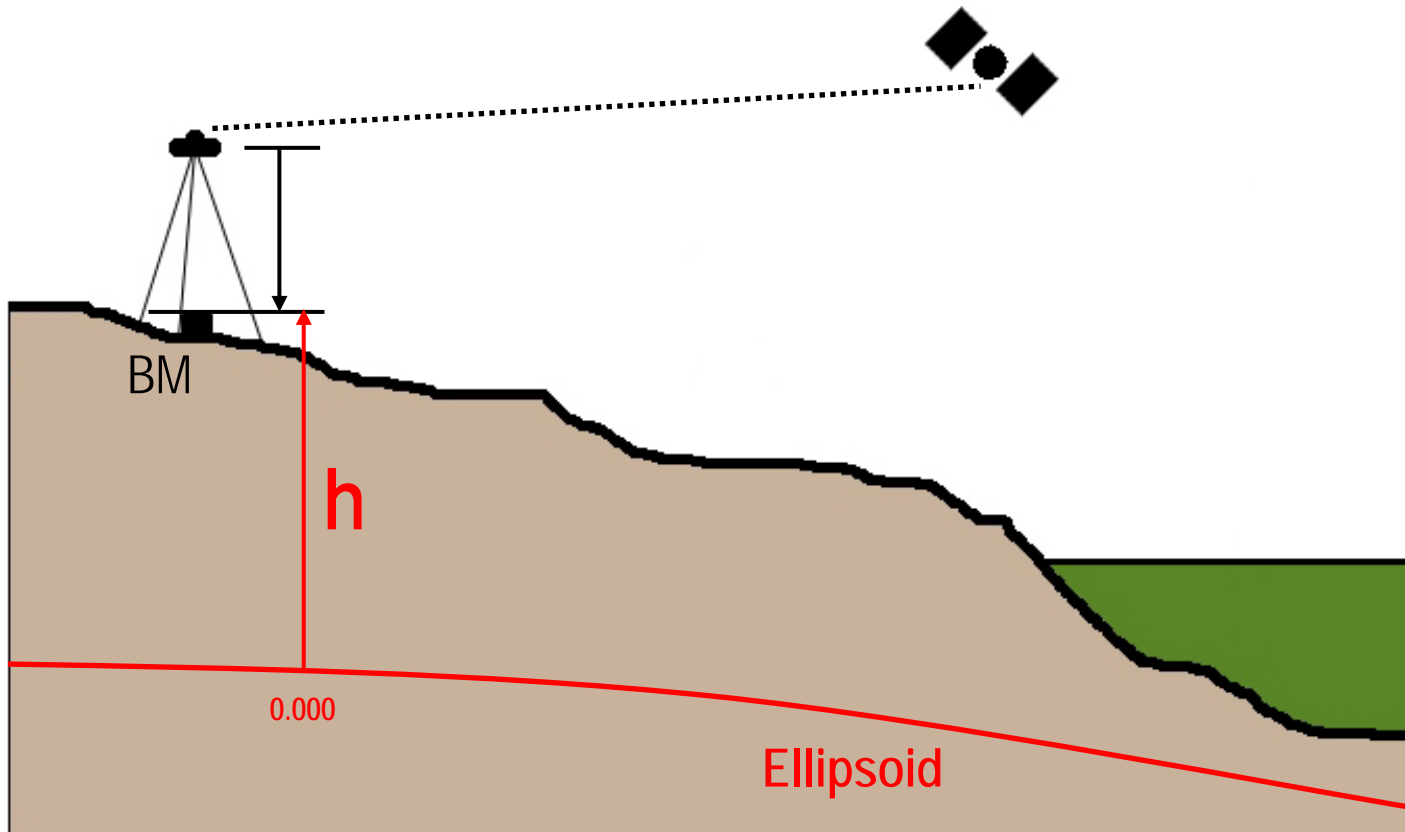
GNSS



Ellipsoid Reference Surface



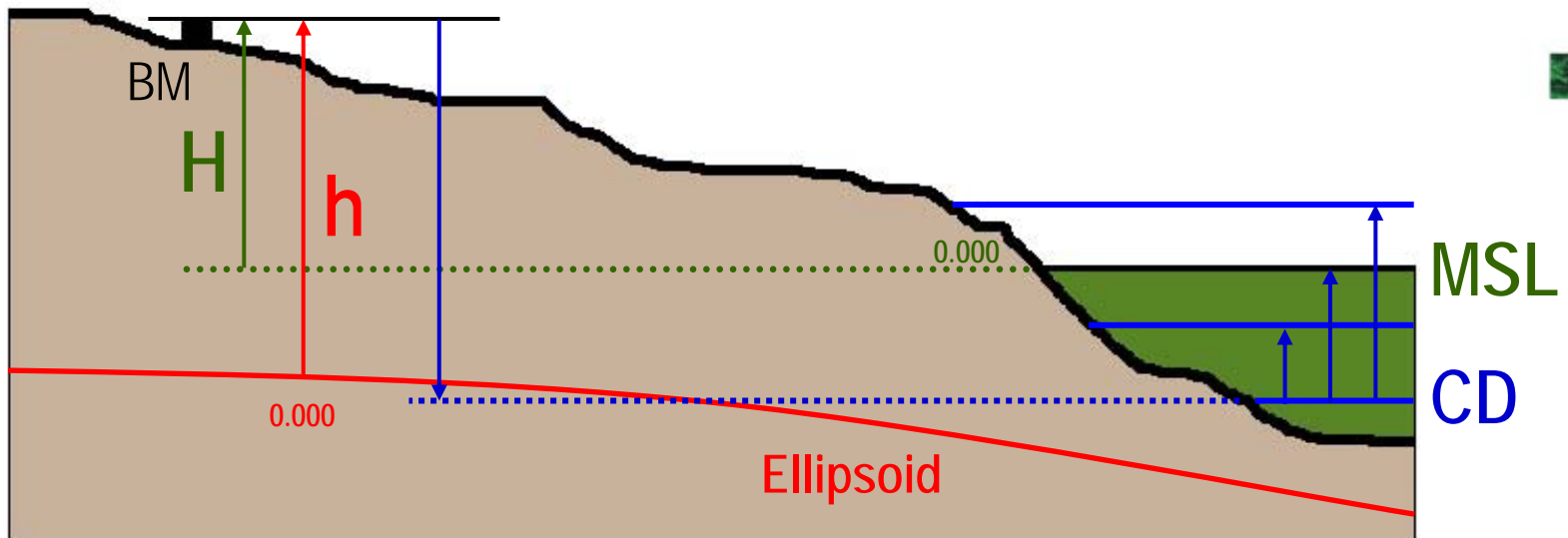
Ellipsoidal Height for BM



Height Transfer Information



- MSL, CD and Ellipsoid connected via Bench mark



Most Important Points



- Relate sea level measurements/tide pole to BM
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