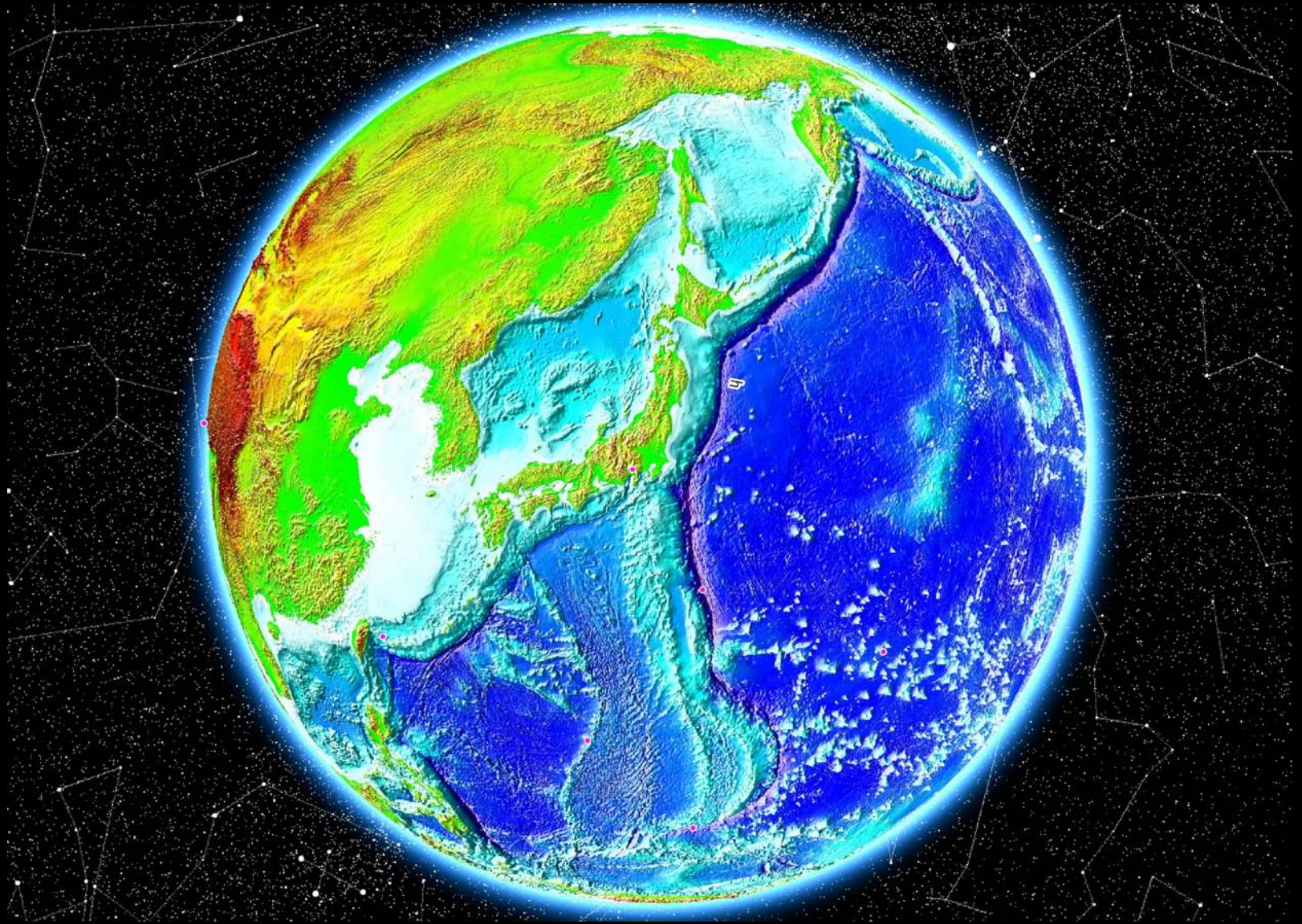


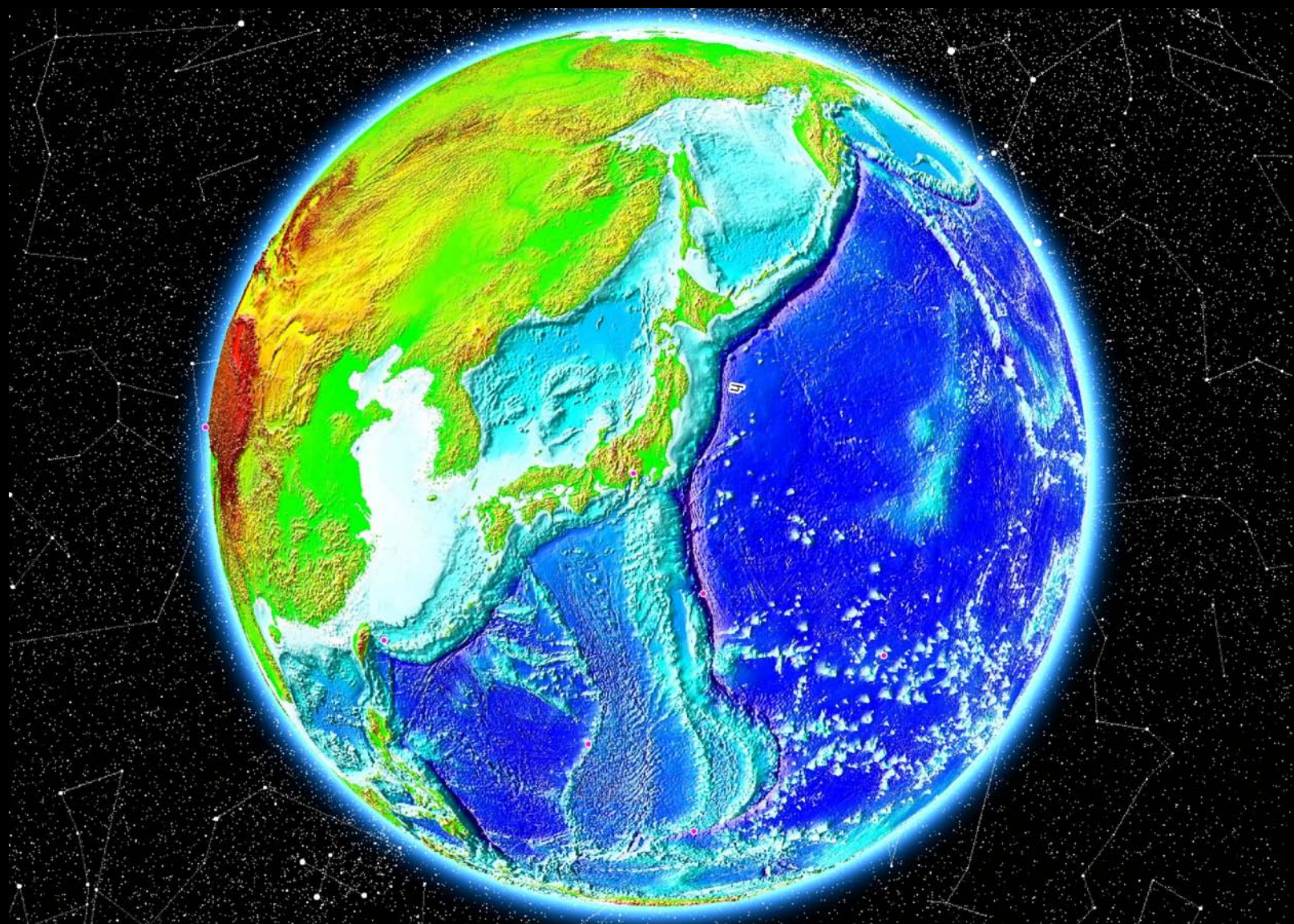
Geodetic Transformation  
- A case study  
From Tokyo Datum to WGS84

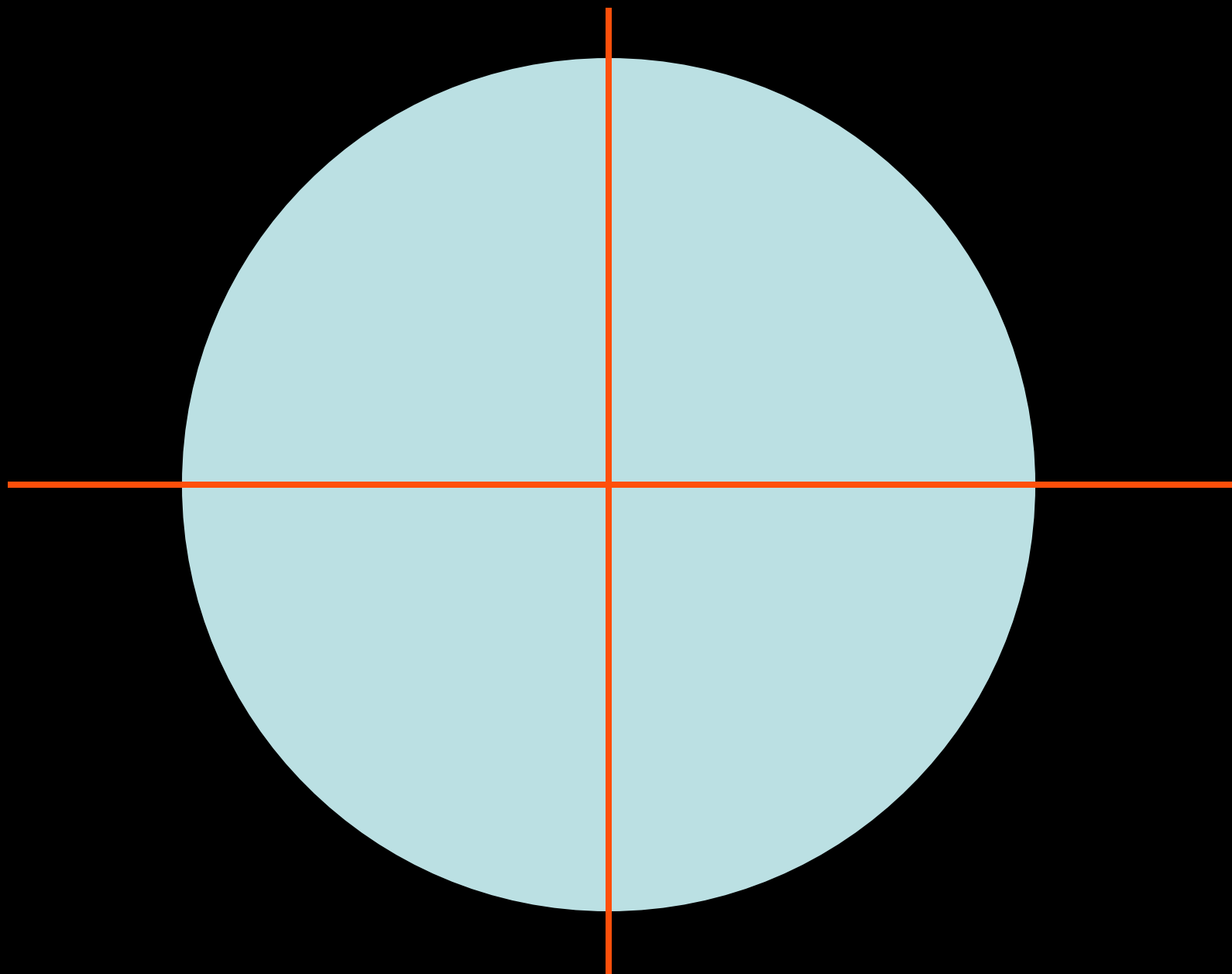
Shin Tani

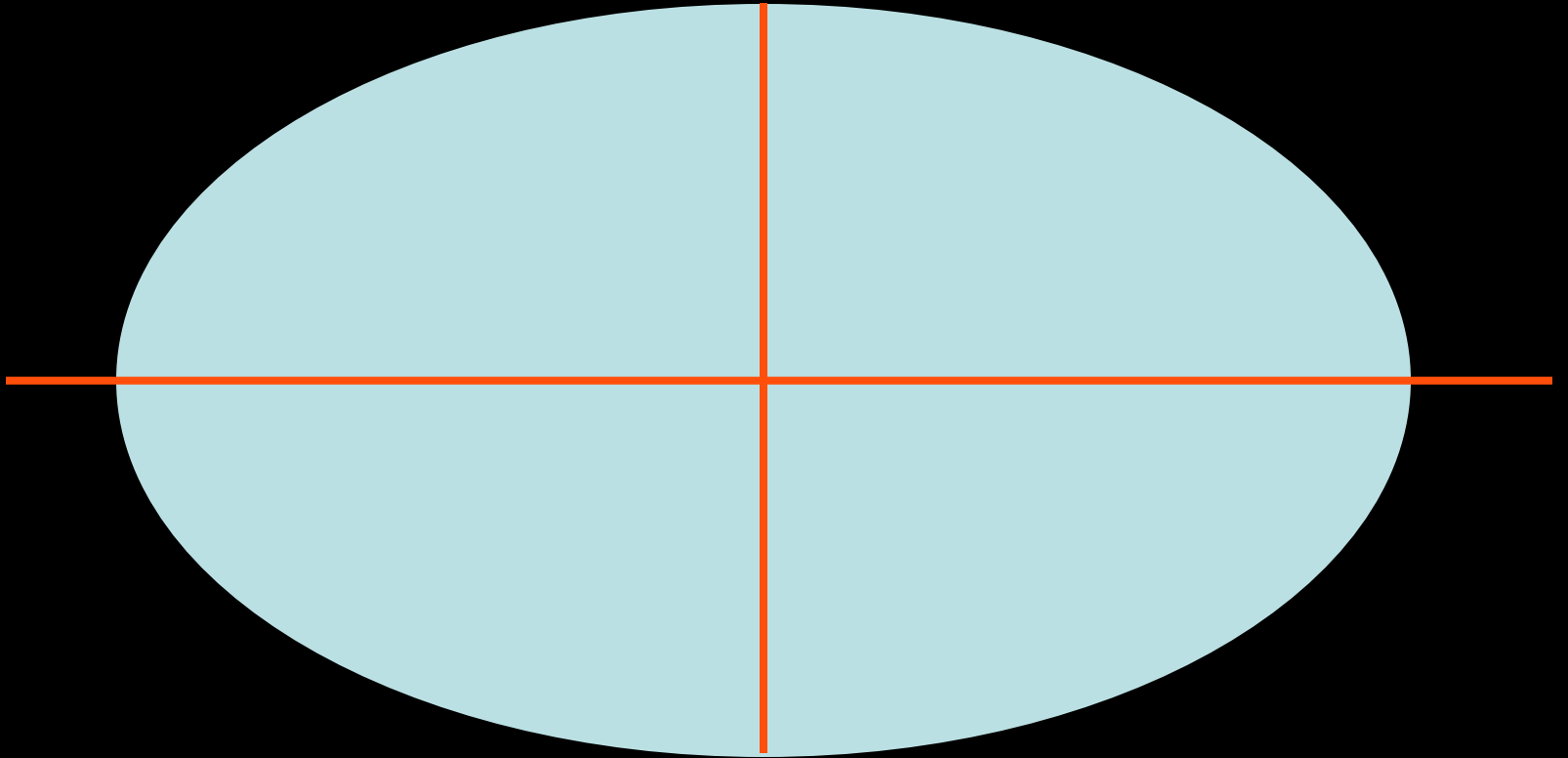
Hydrographic and Oceanographic Department  
Japan

# Positions -another factor of bathymetry-







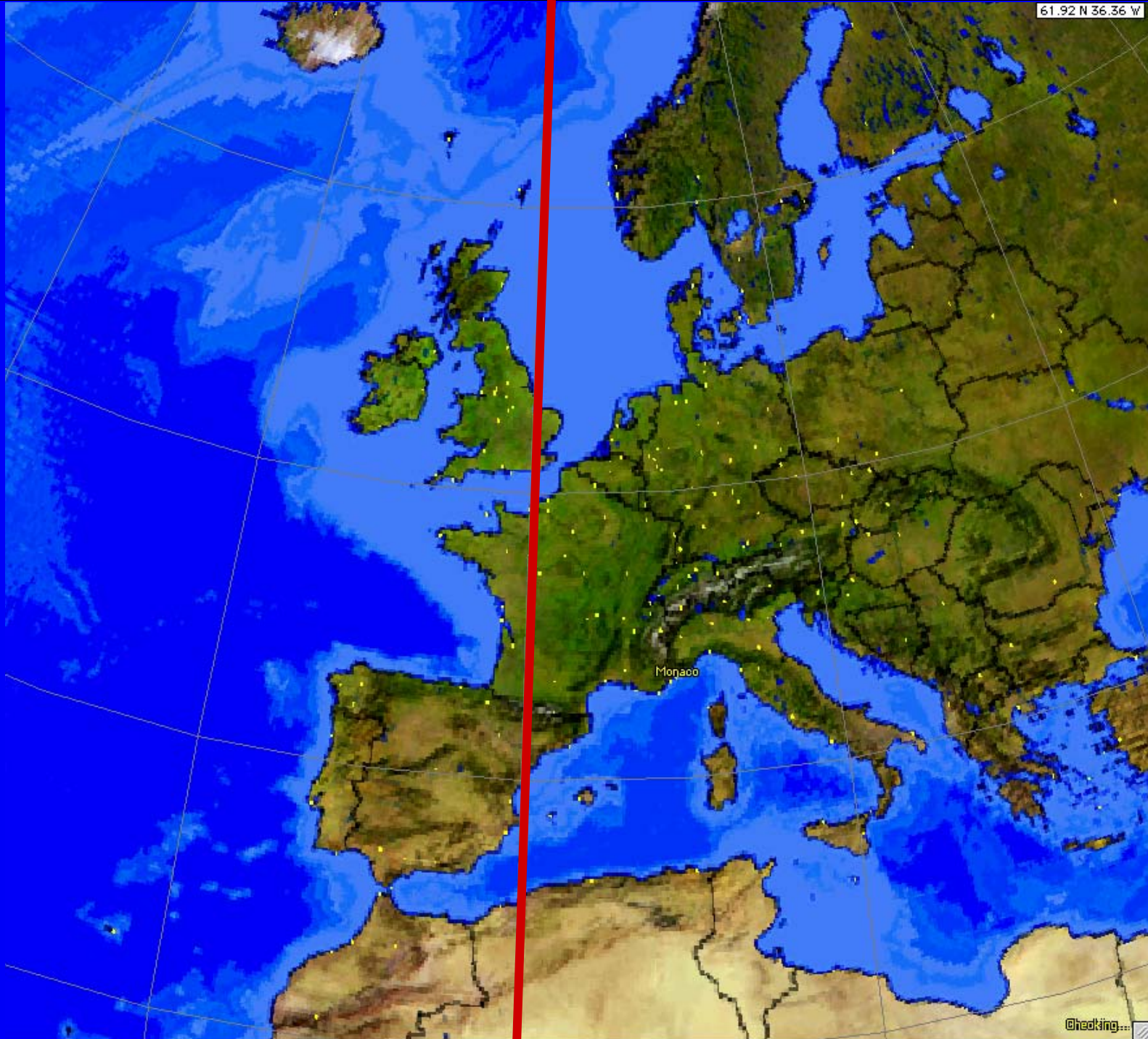


# 旧江戸城

1638年(寛永15年)

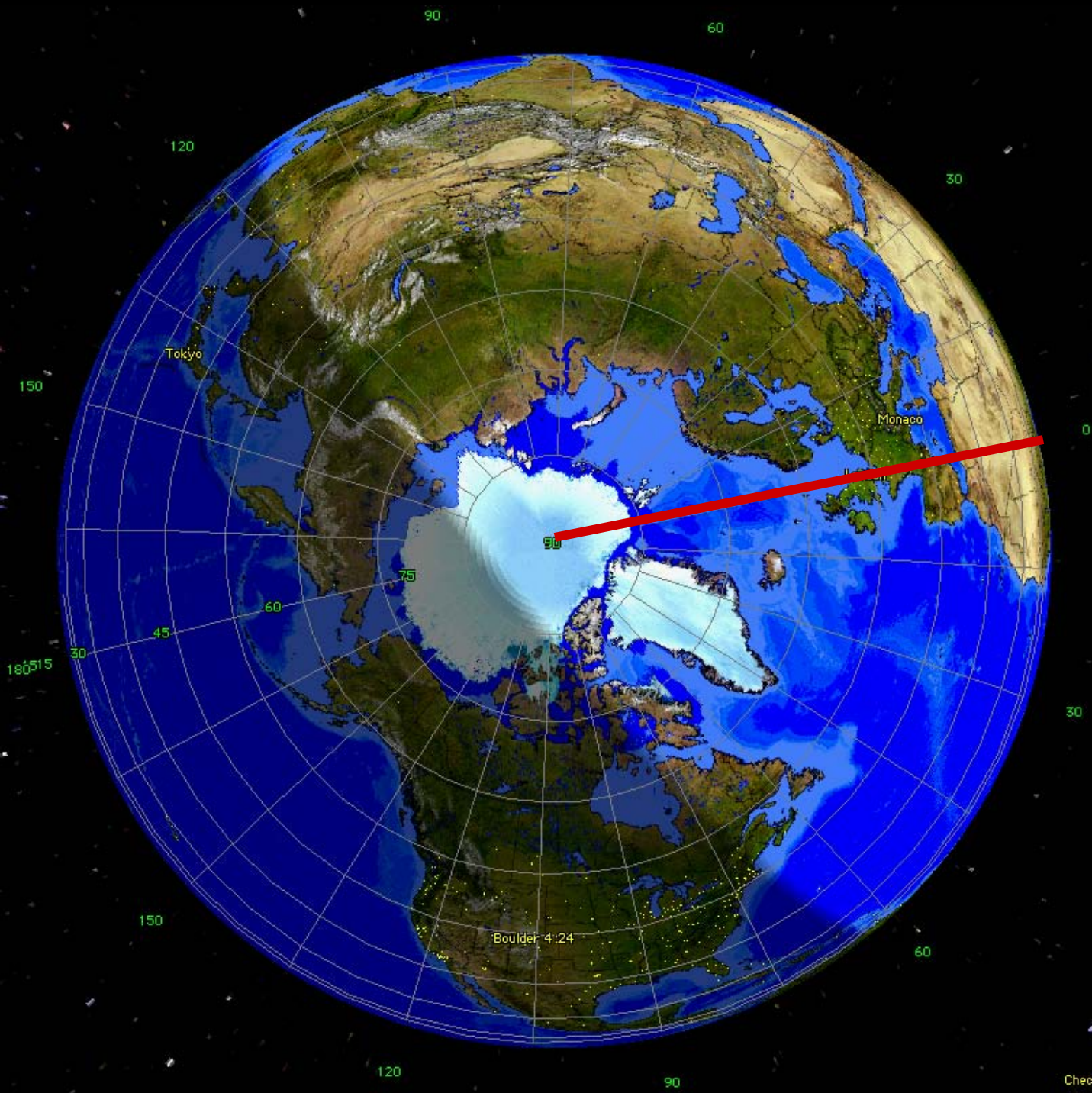


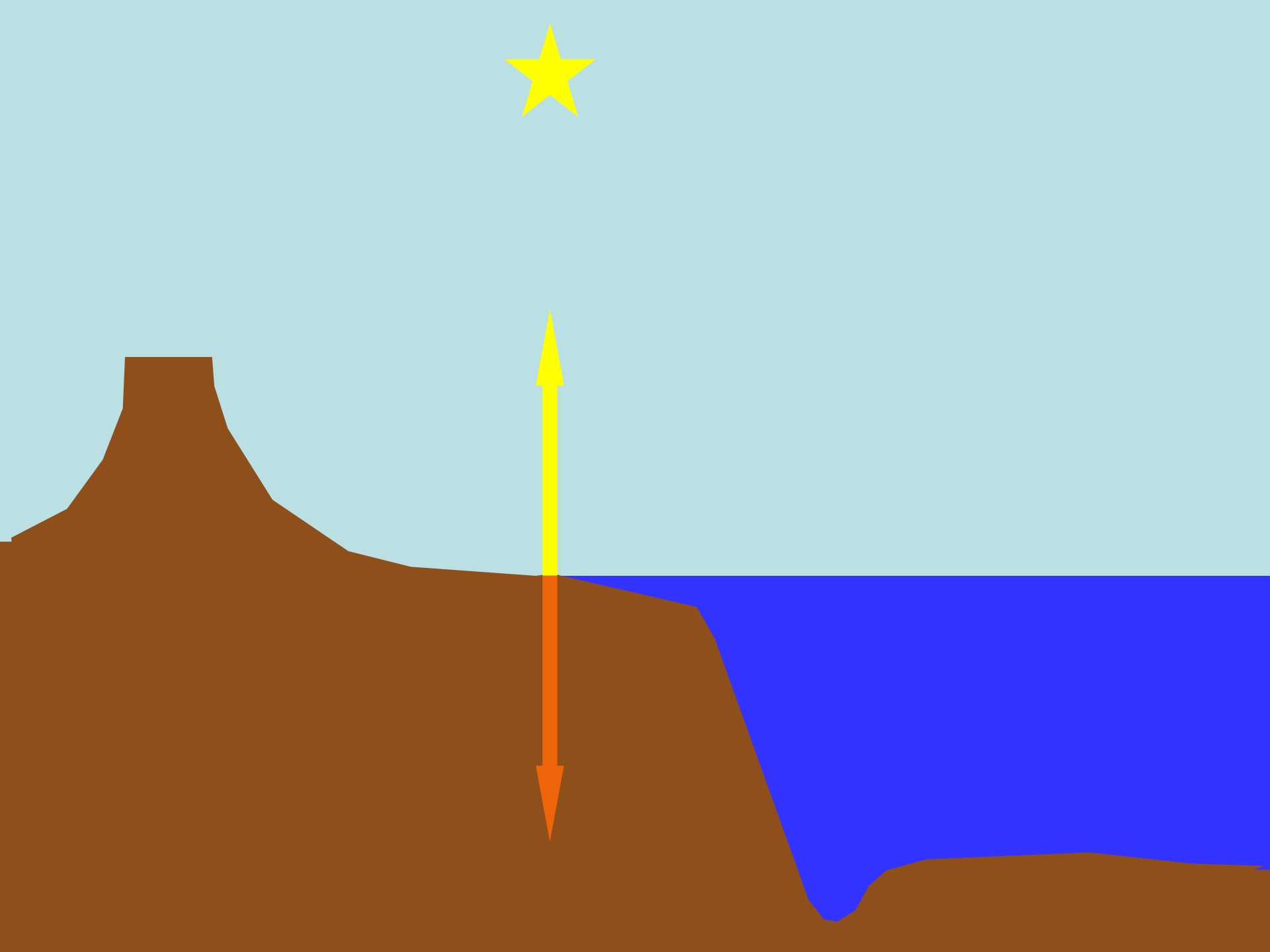




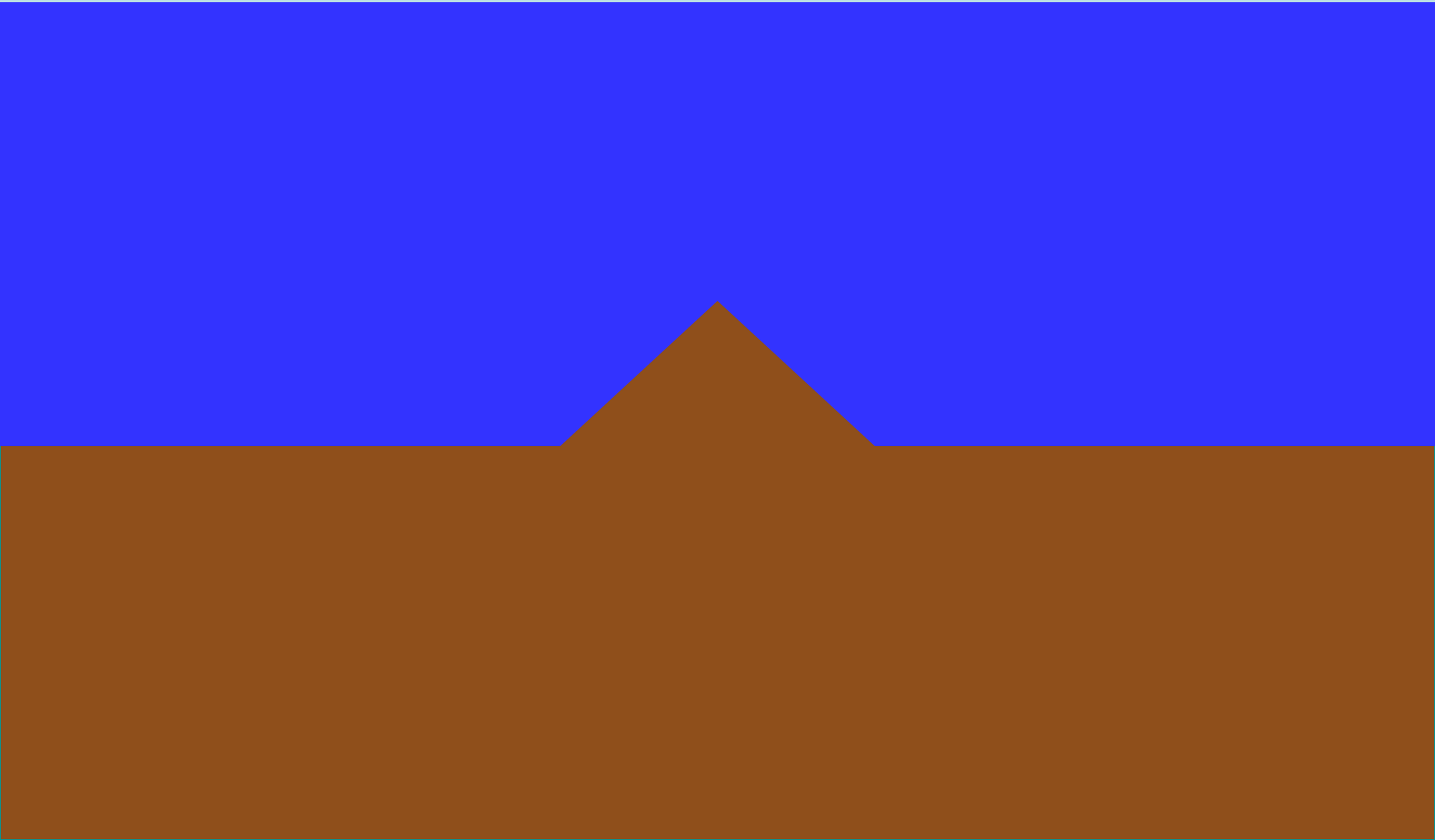
Monaco



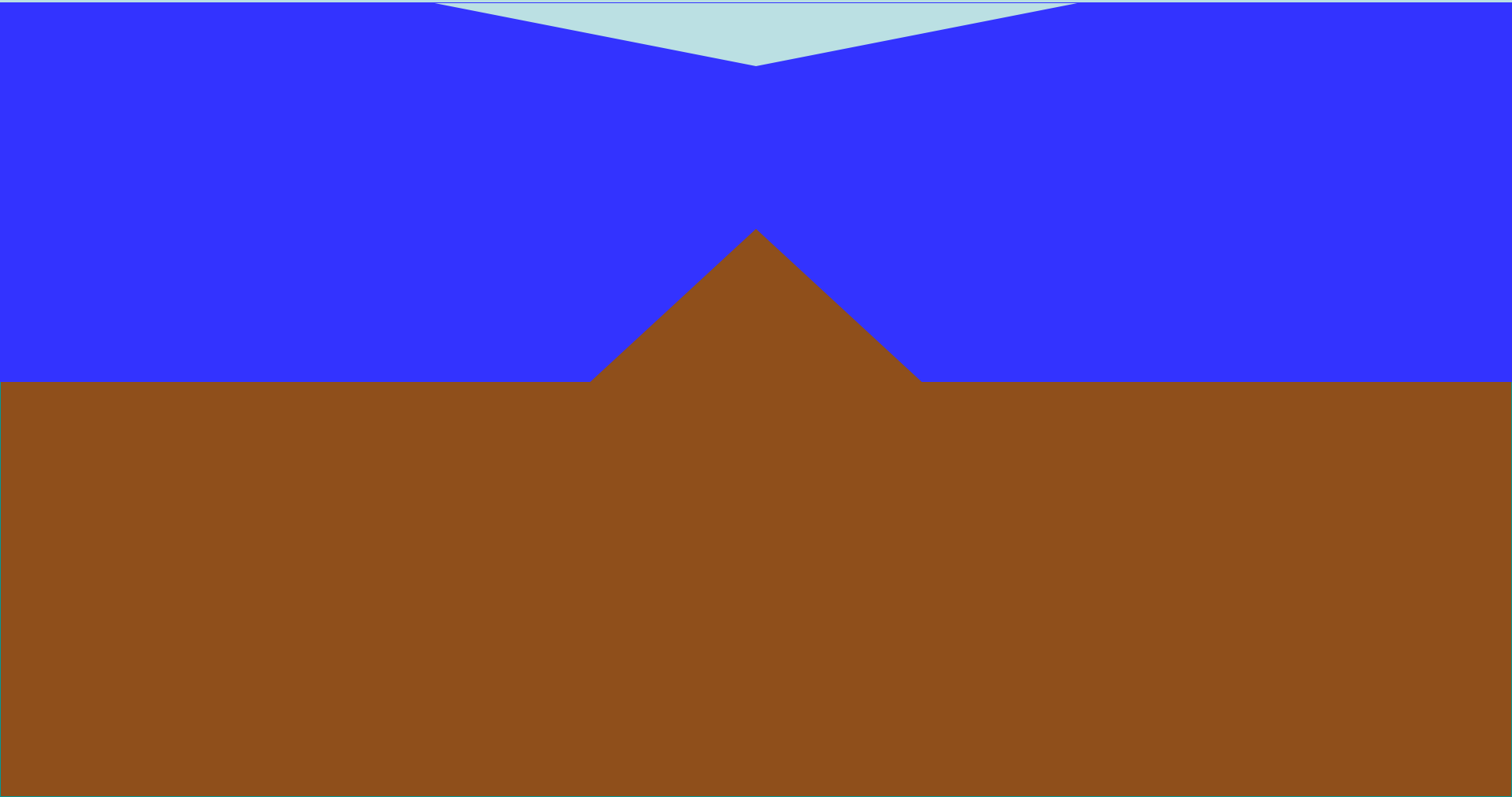




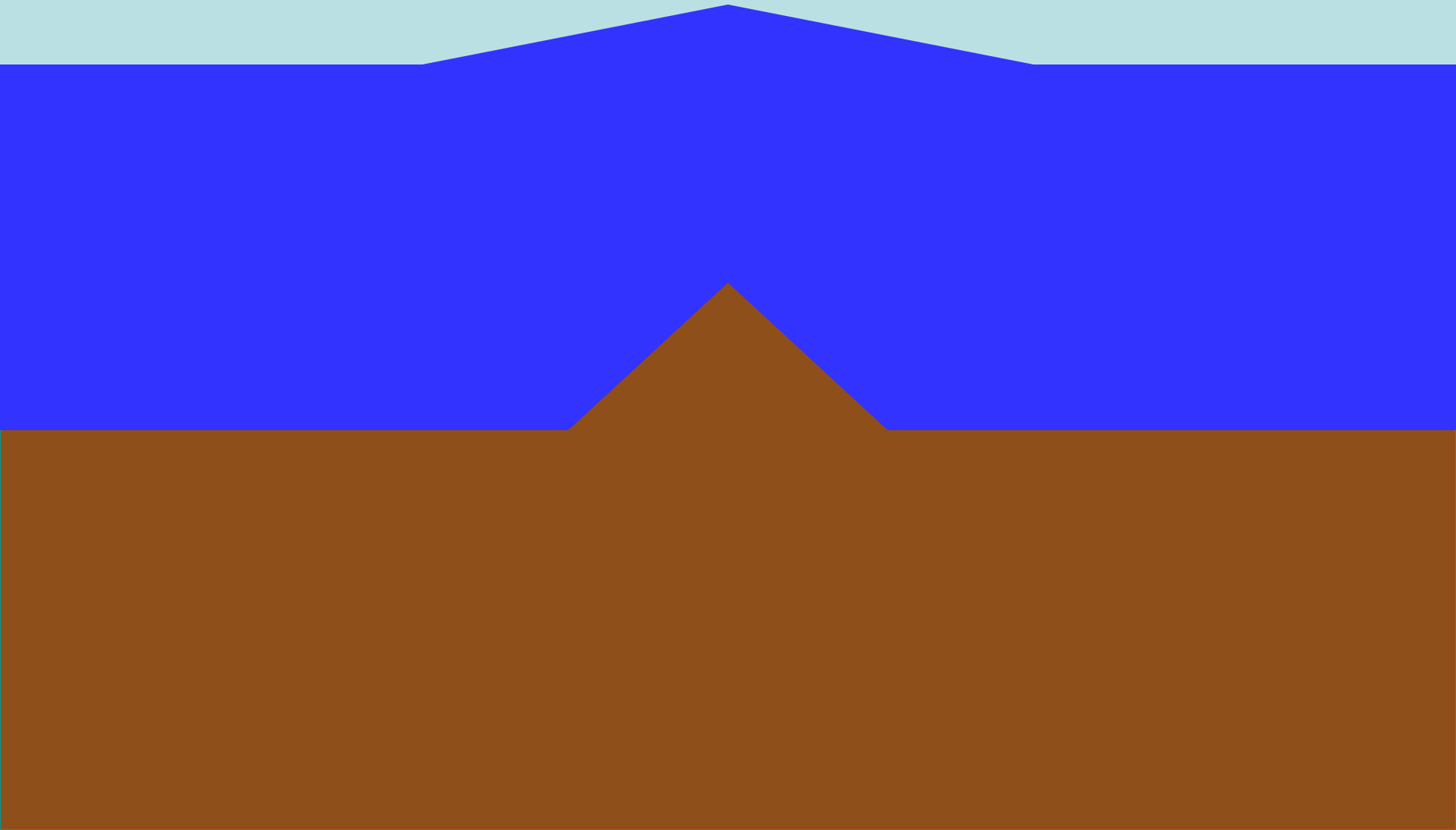
How about the sea surface if a seamout exists



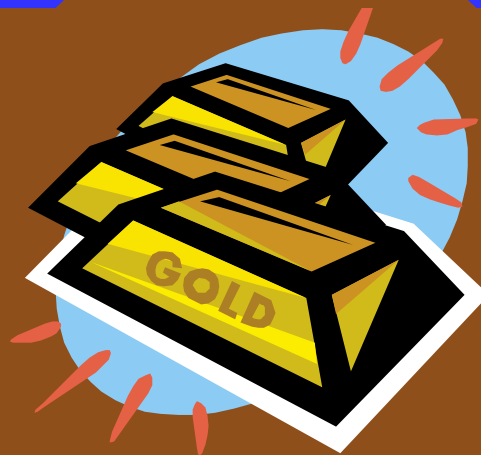
Depressed?



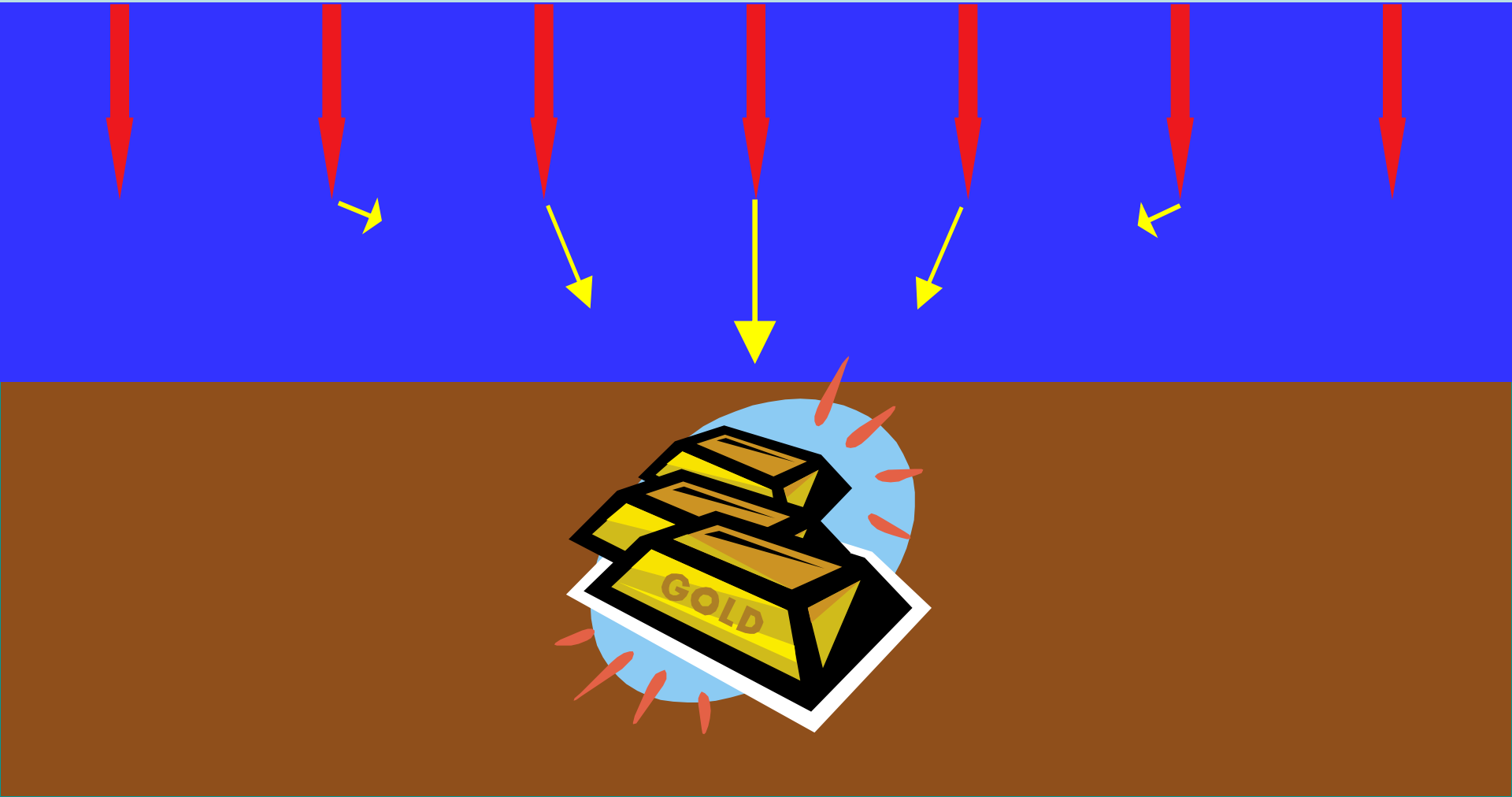
swollen ?



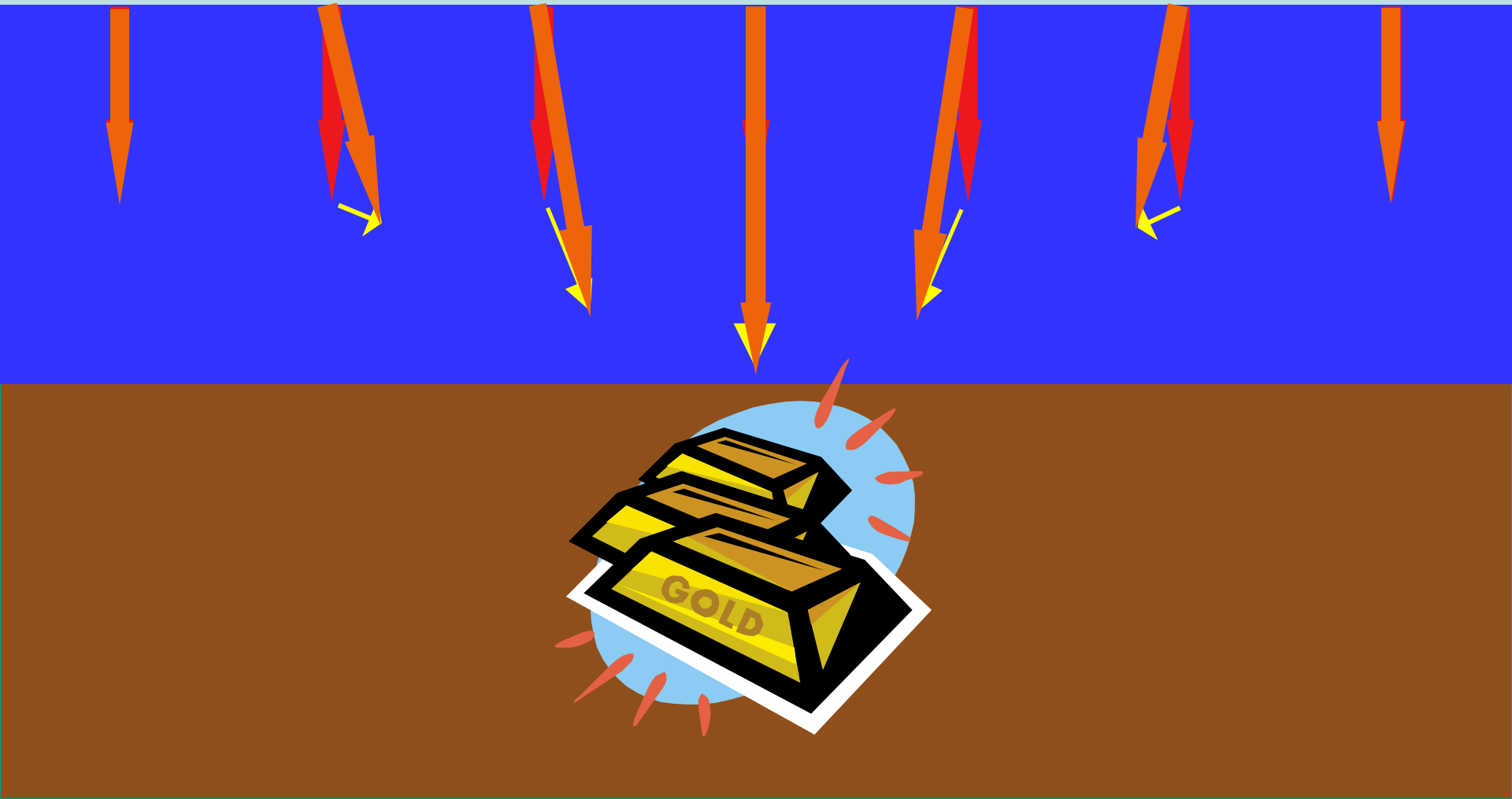
insentive



gravity

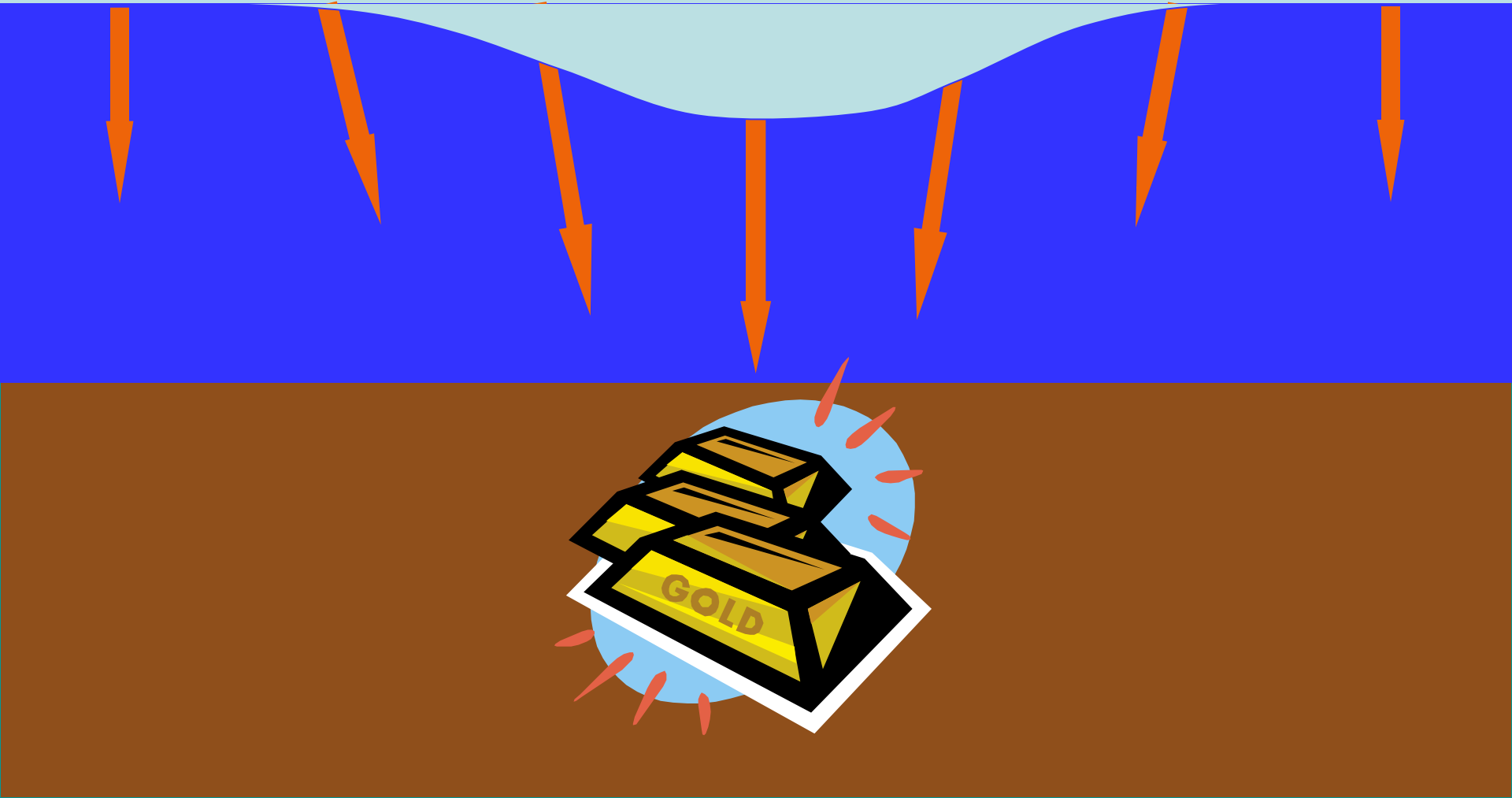


vector

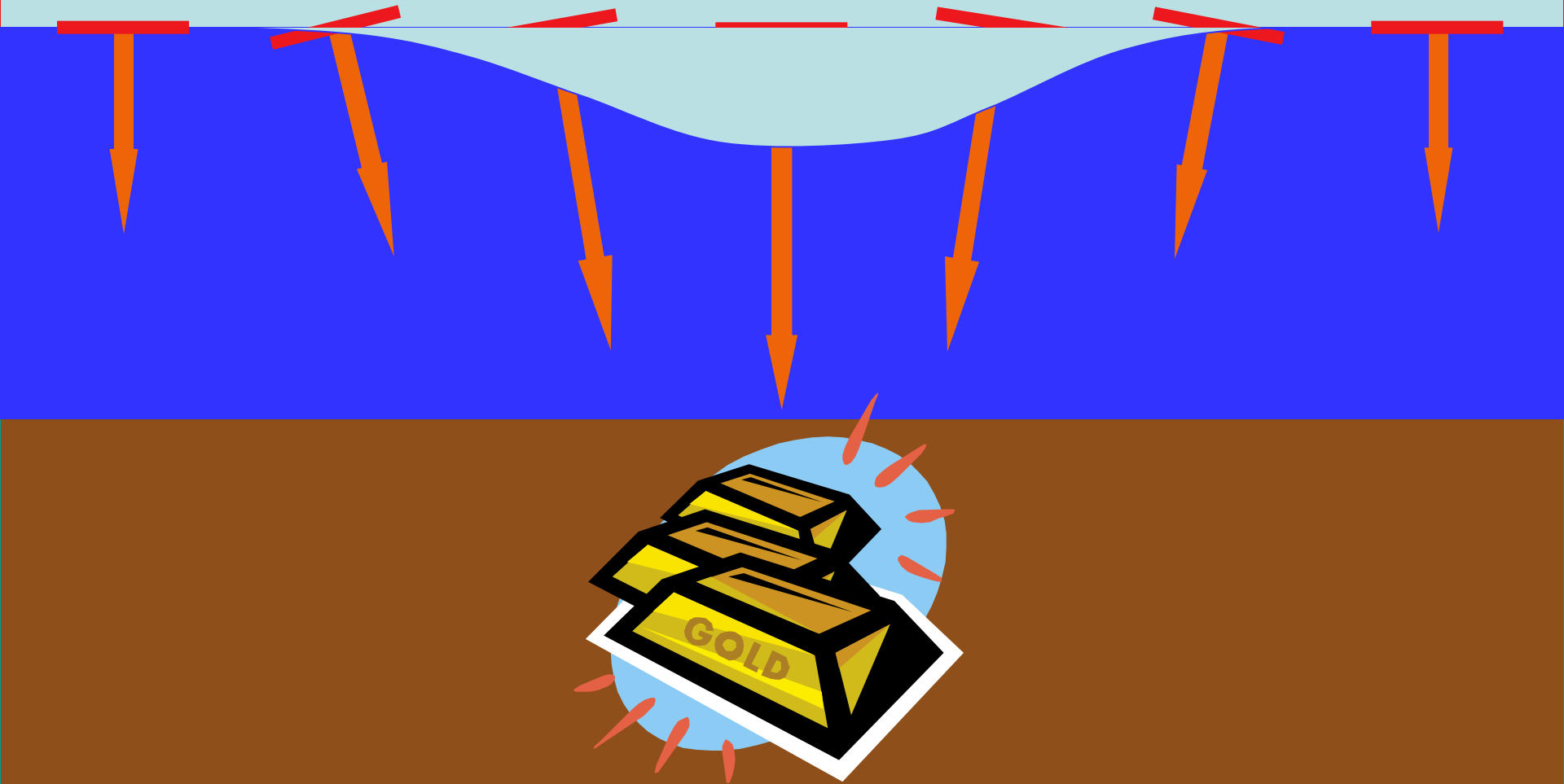


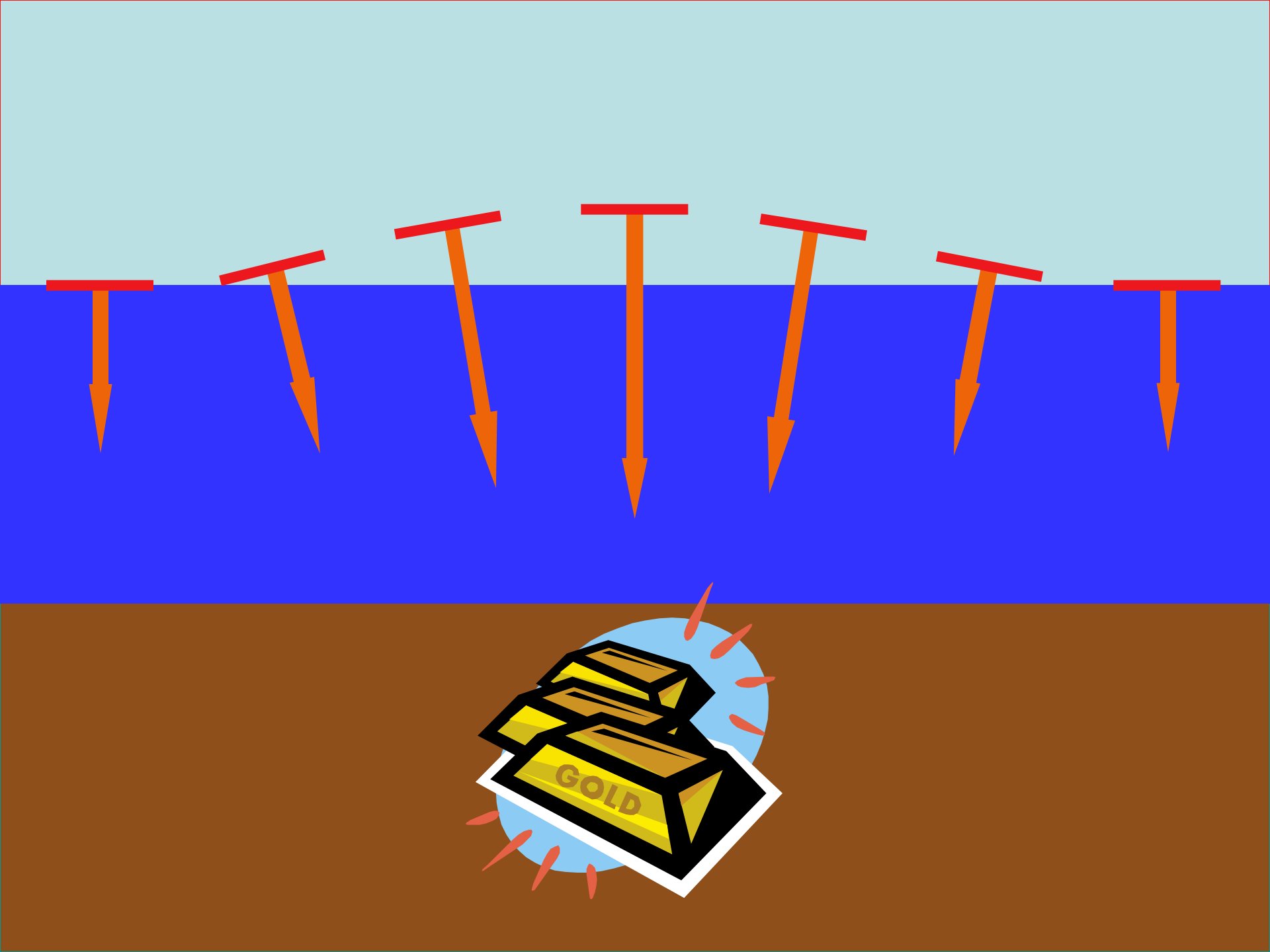


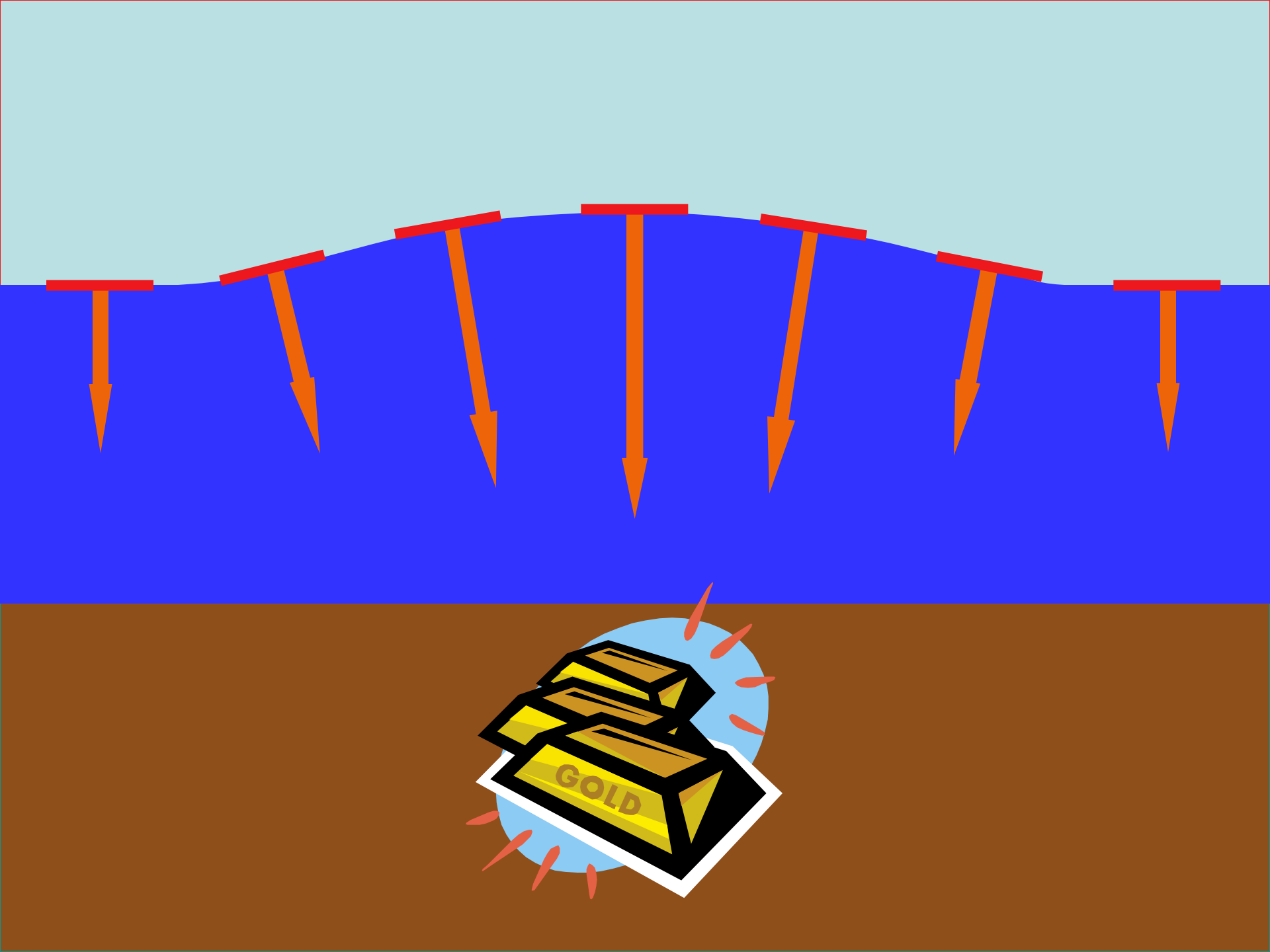
Due to the stronger gravity...

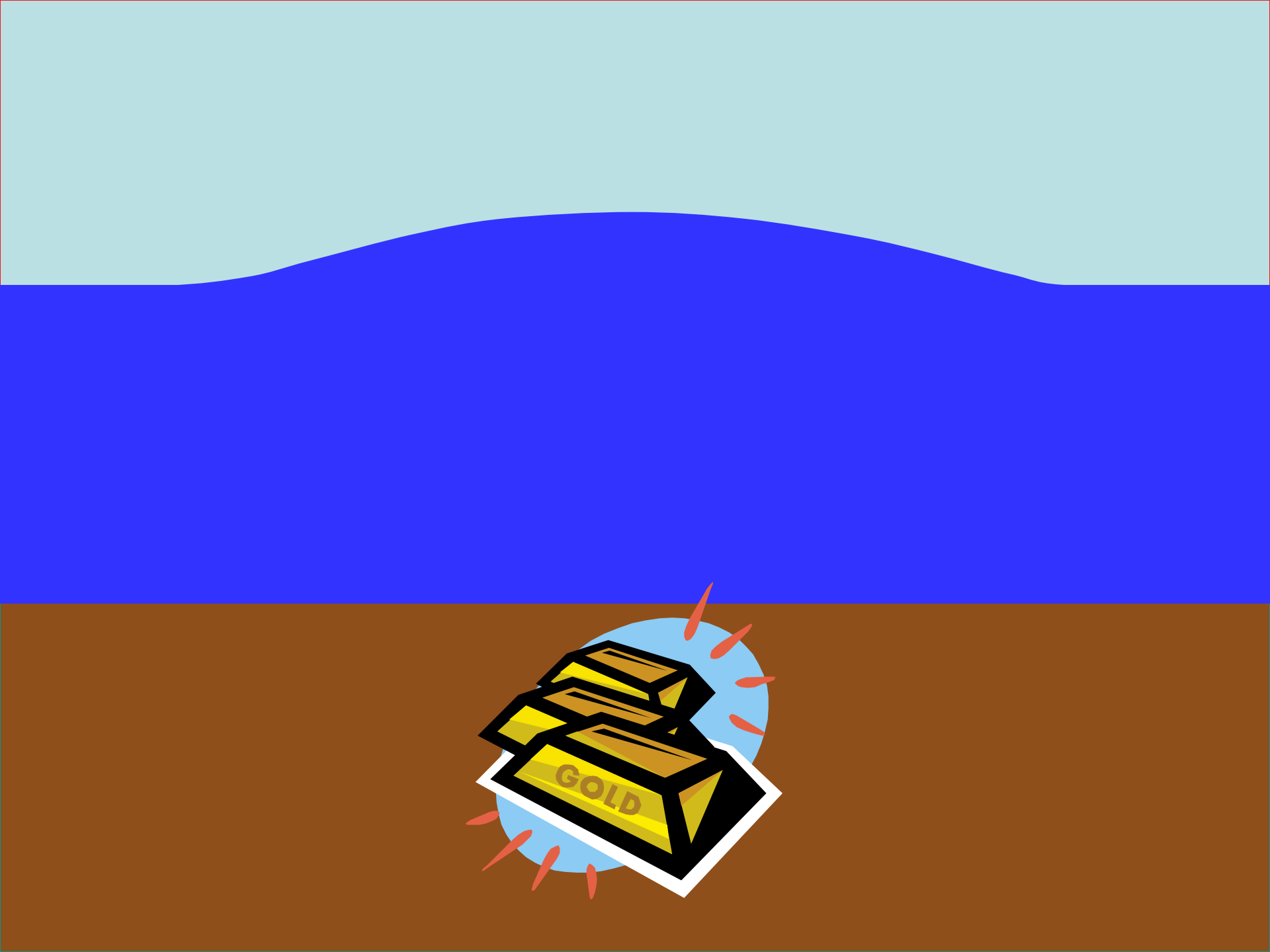


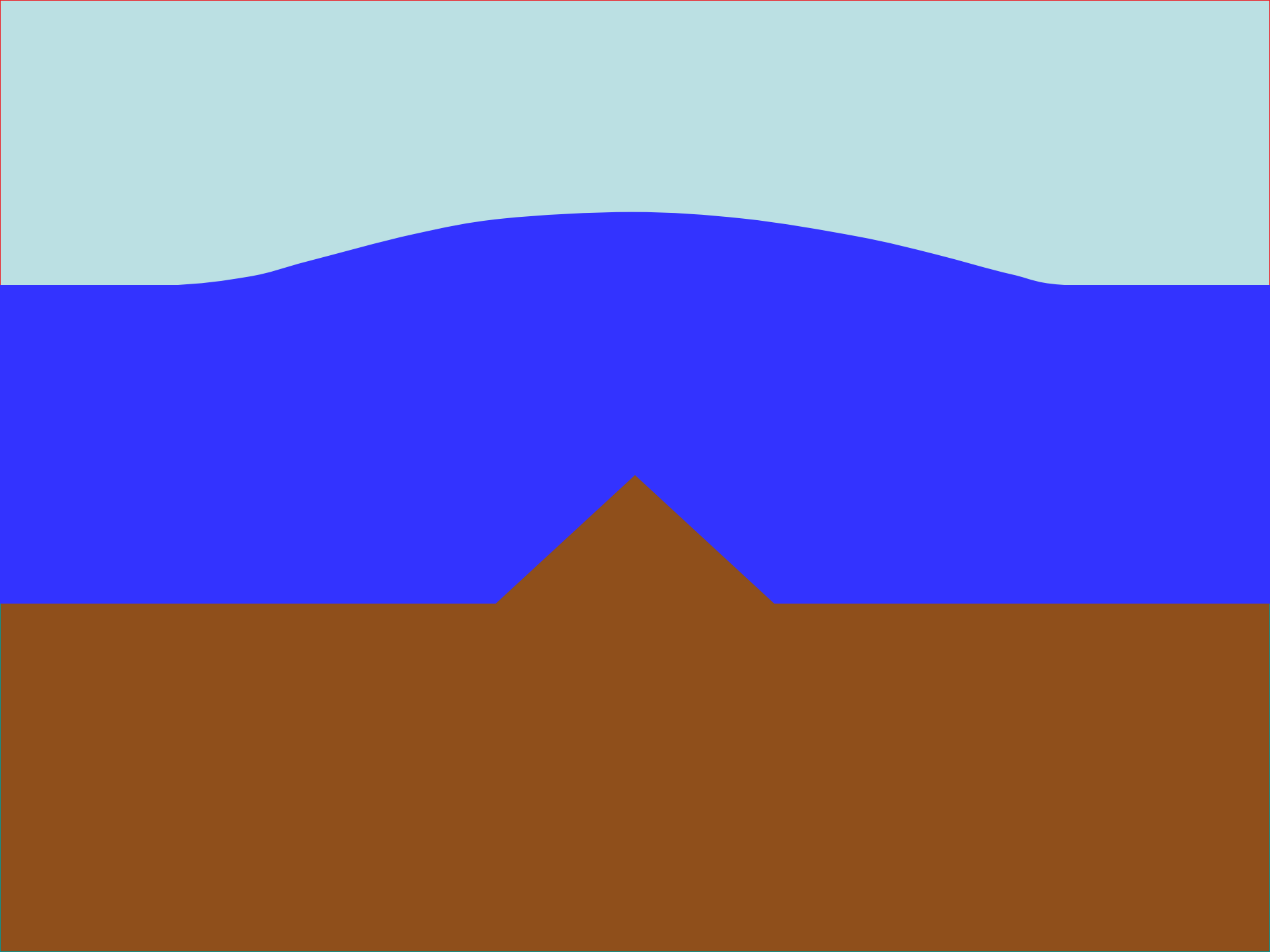
or . . .



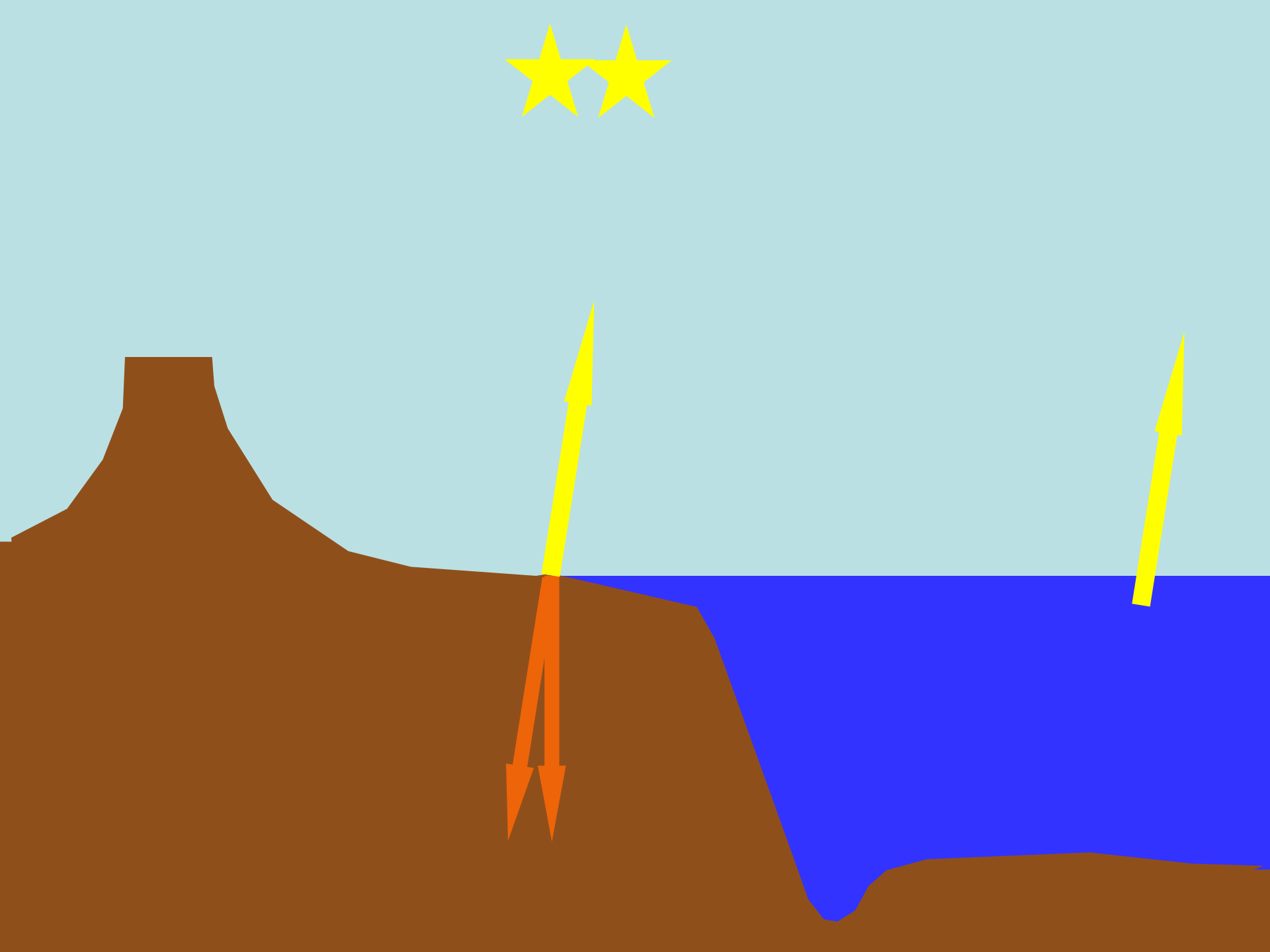












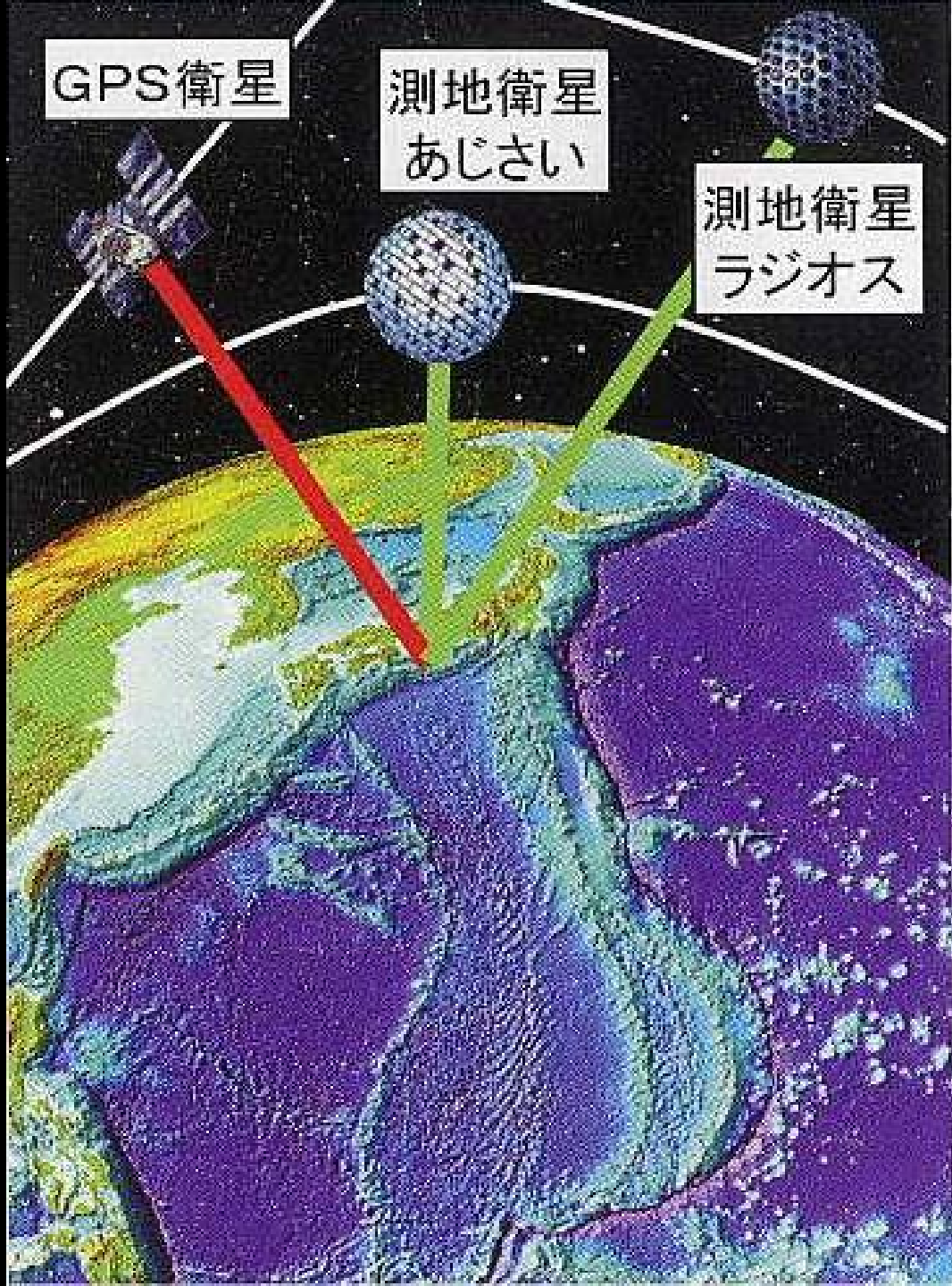




GPS衛星

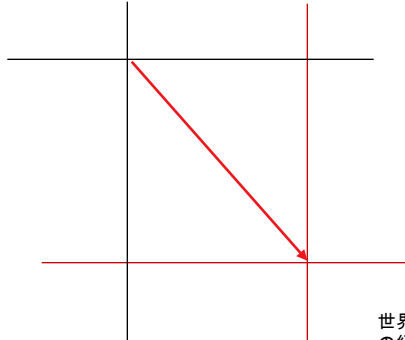
測地衛星  
あじさい

測地衛星  
ラジオス

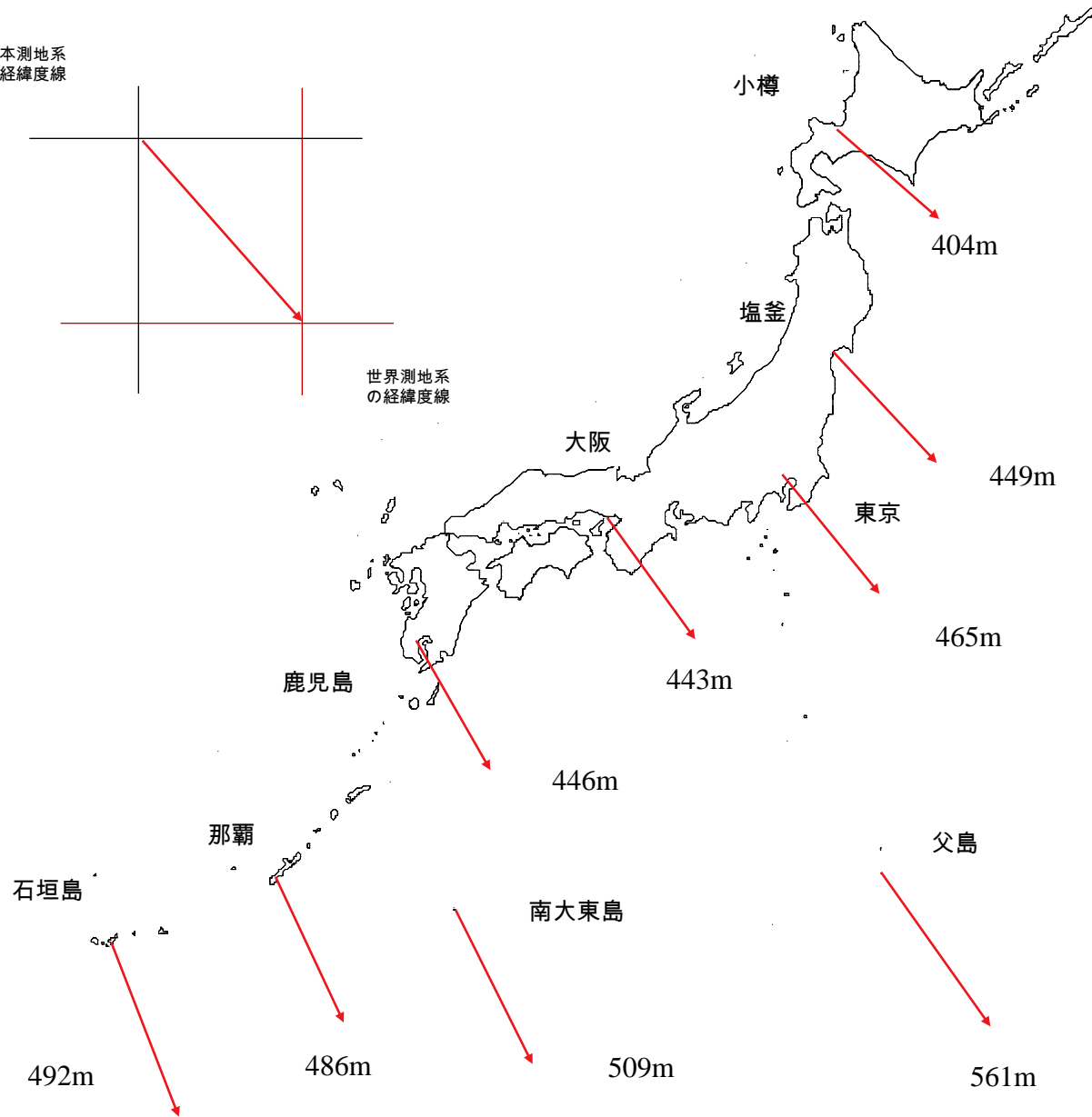


# (参考) 世界測地系と日本測地系との差

日本測地系の  
経緯度線



世界測地系の  
経緯度線



If the Geodetic System used does not matches...

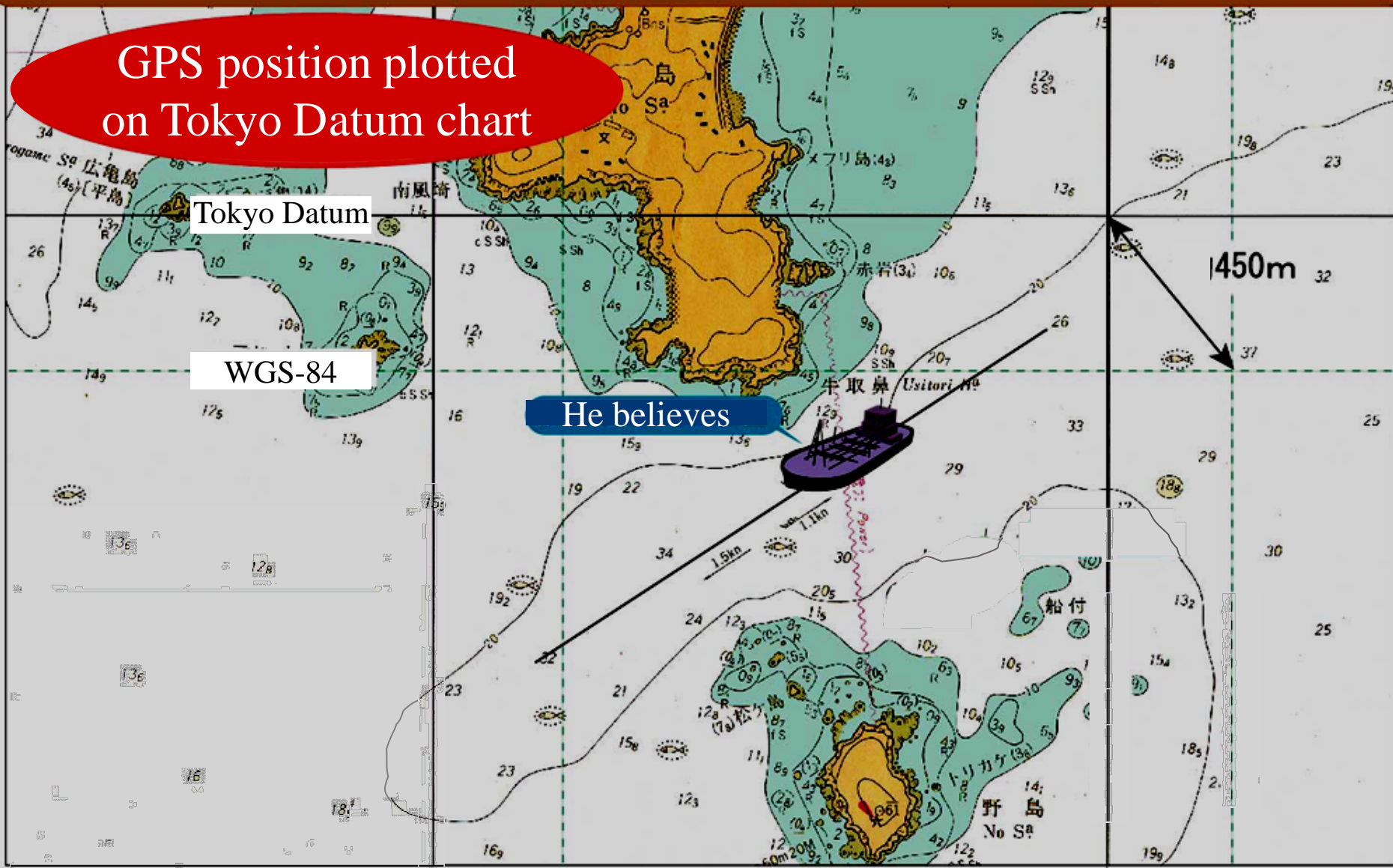
GPS position plotted  
on Tokyo Datum chart

Tokyo Datum

WGS-84

He believes

1450m 32



If the Geodetic System used does not matches...

GPS position plotted  
on Tokyo Datum chart

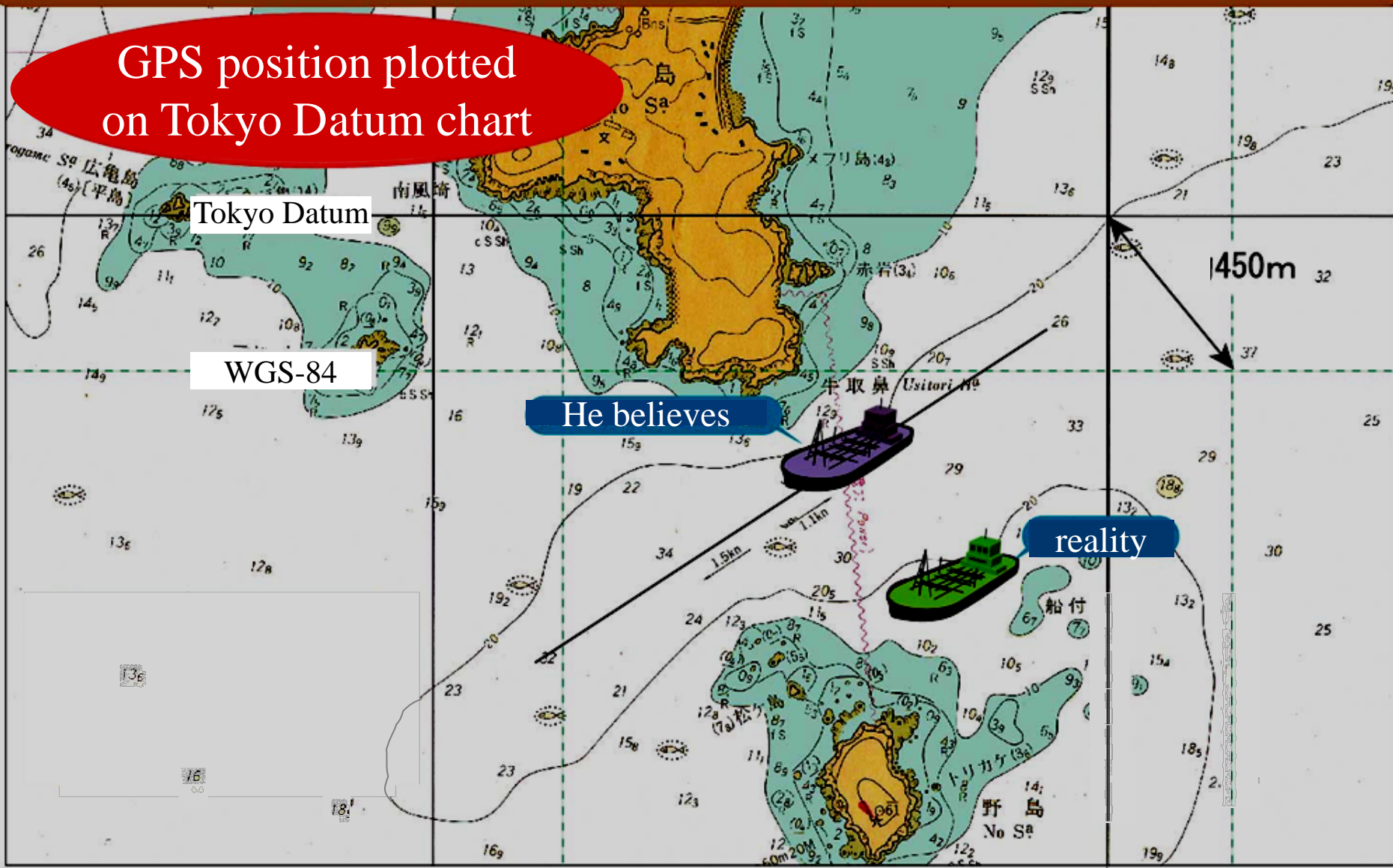
Tokyo Datum

WGS-84

He believes

reality

1450m 32



See the difference of WGS-84 charts

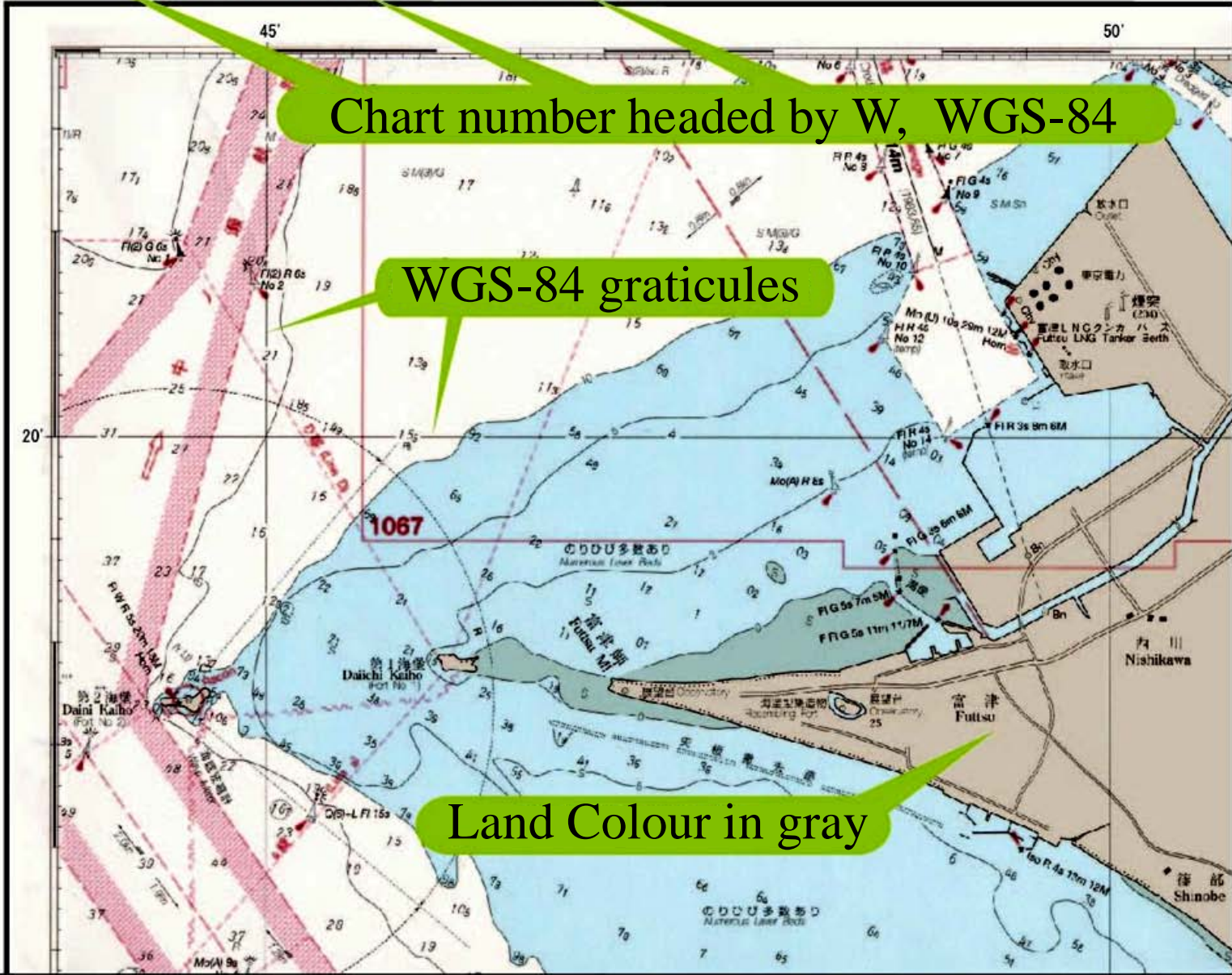
7901M

世界測地系 WGS-84

Chart number headed by W, WGS-84

WGS-84 graticules

Land Colour in gray



日本  
南西諸島  
沖縄群島

# 伊平屋列島南部

実形 ---  $\frac{1}{30,000}$

昭和59年までの日本海上保安庁水路部の測量  
陸部は国土地理院の資料による

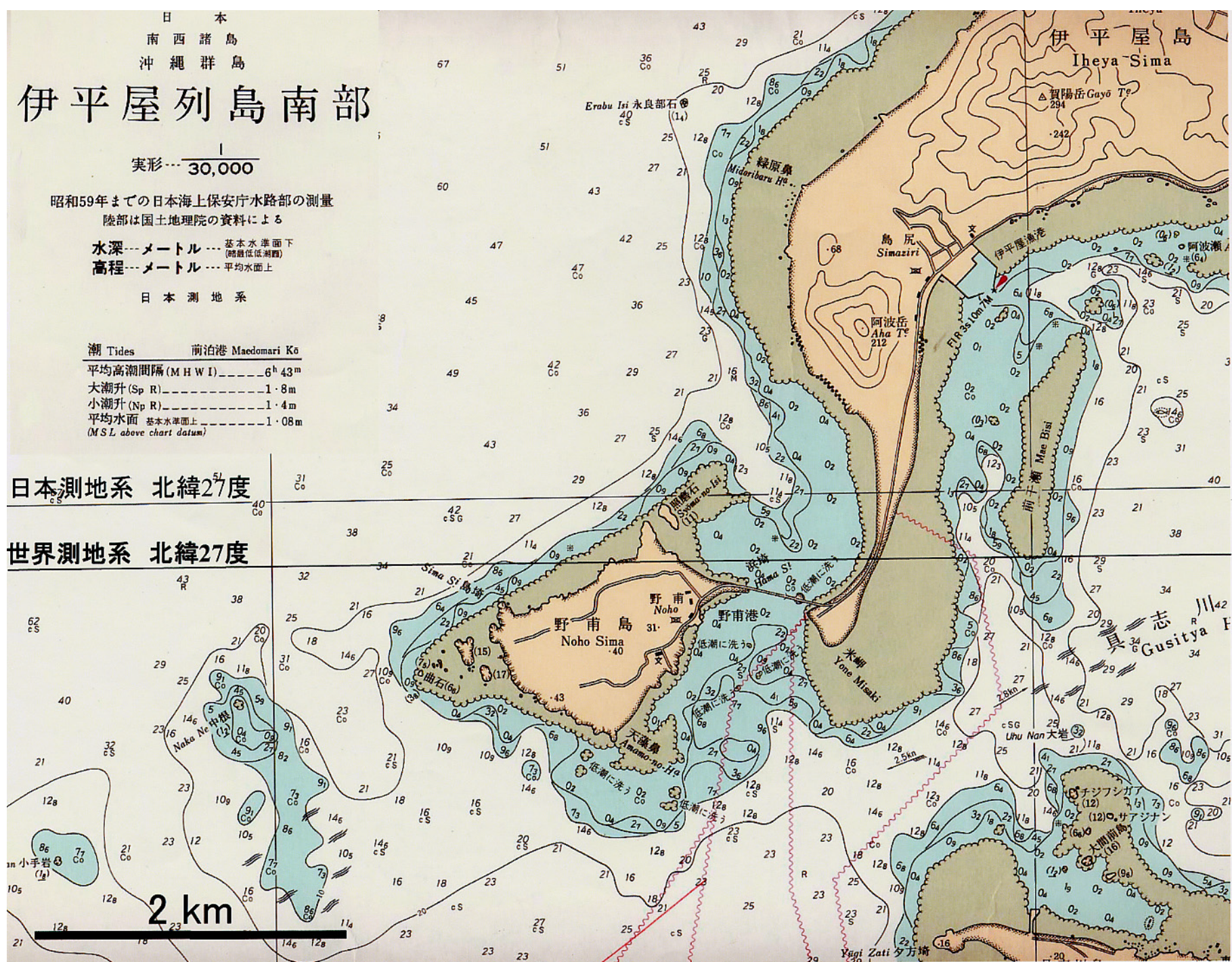
水深 --- メートル --- 基本水準面下  
(略最低低潮面)  
高程 --- メートル --- 平均水面上

日本測地系

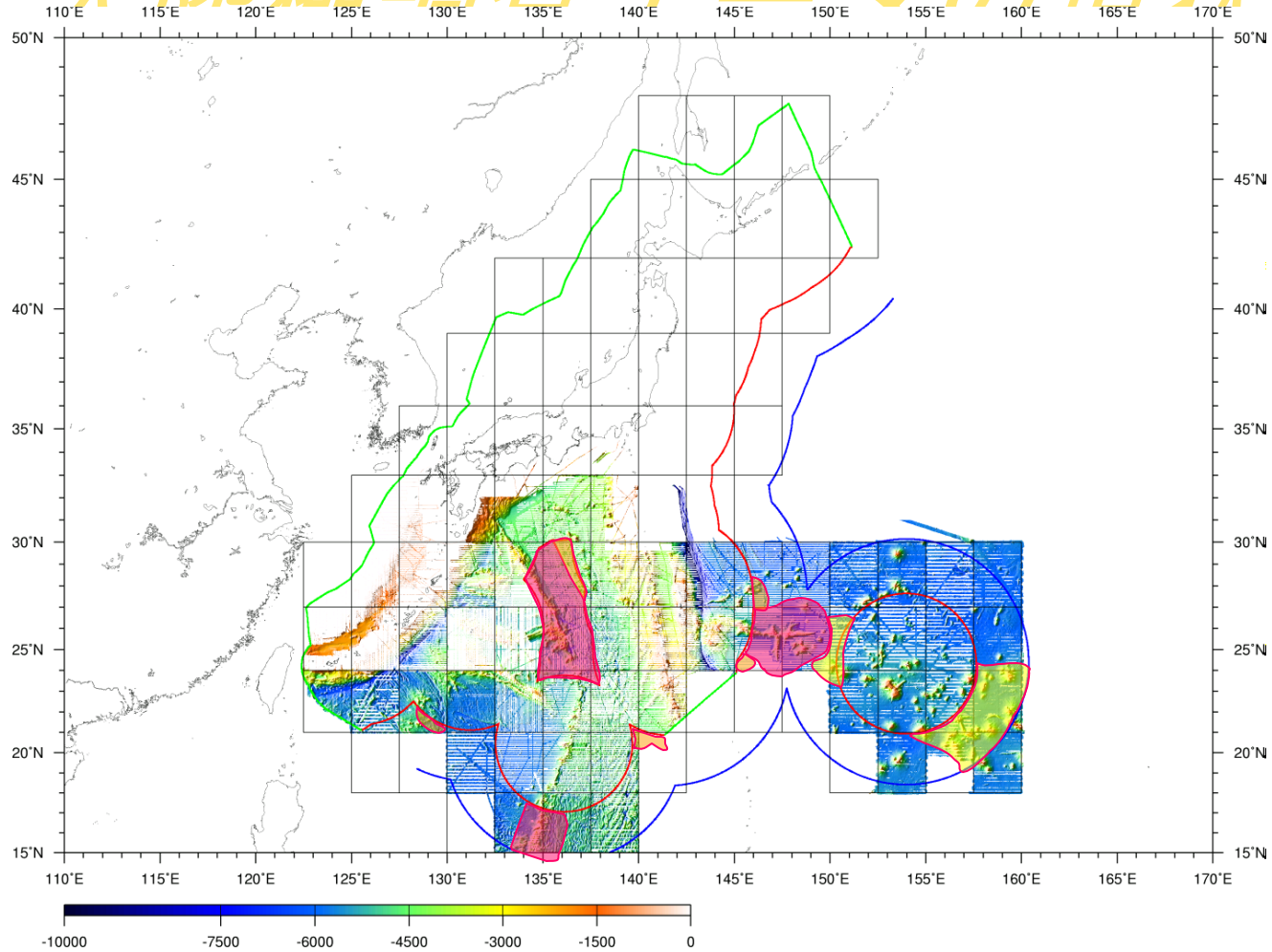
潮 Tides	前泊港 Maedomari Kō
平均高潮間隔 (M H W I)	6 <sup>h</sup> 43 <sup>m</sup>
大潮升 (S <sub>p</sub> R)	1.8 m
小潮升 (N <sub>p</sub> R)	1.4 m
平均水面	基本水準面上
	(M S L above chart datum)

日本測地系 北緯27度

世界測地系 北緯27度

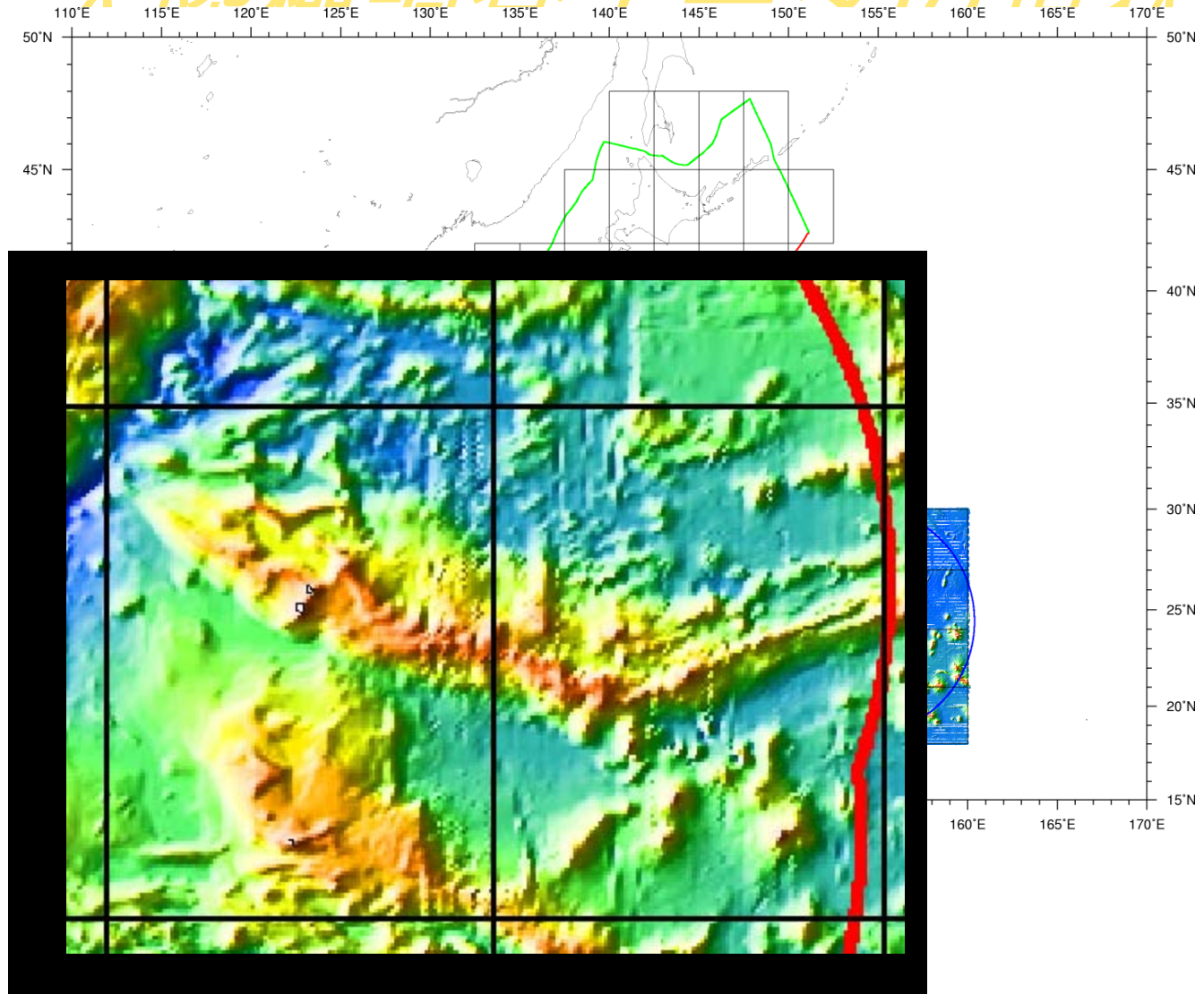


# 大陸棚調査データの現状



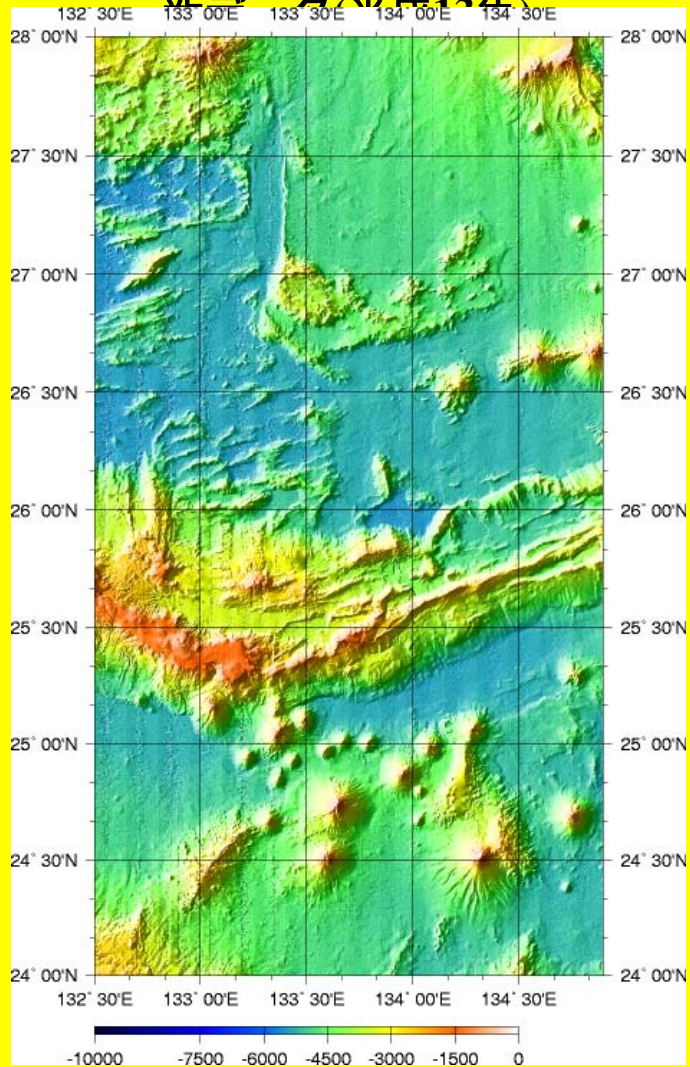


# 大隈棚田本データ一々の現状

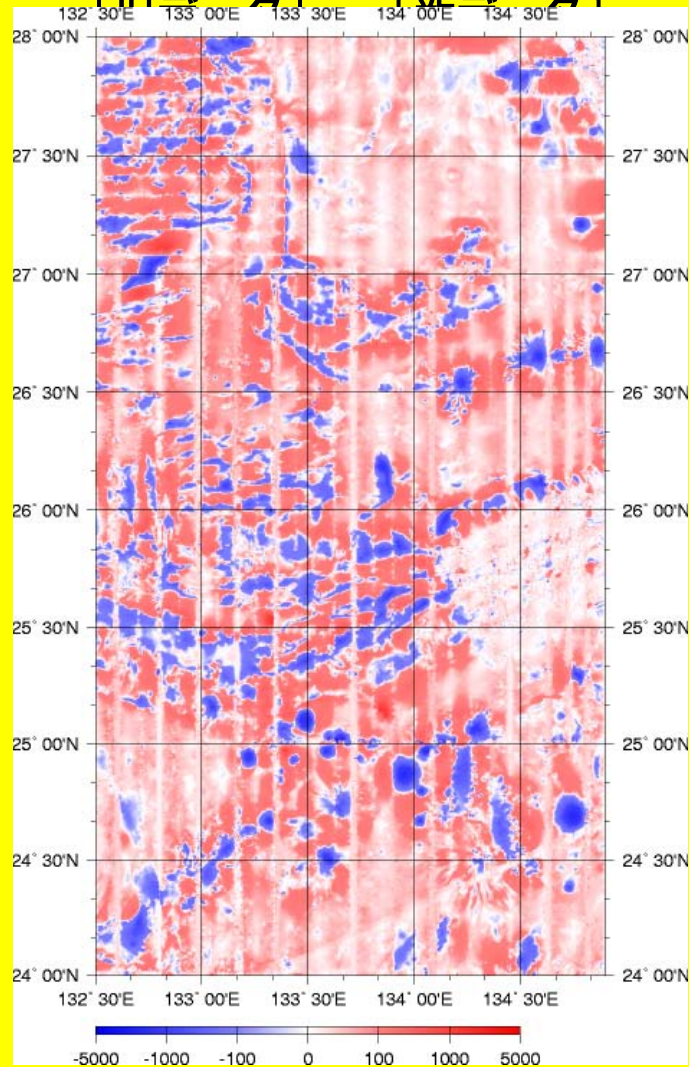


# 桂宮地形図と木ノ柵の比較

新二ヶ谷(平成12年)



旧二ヶ谷 (新二ヶ谷)



昭和(9年)

