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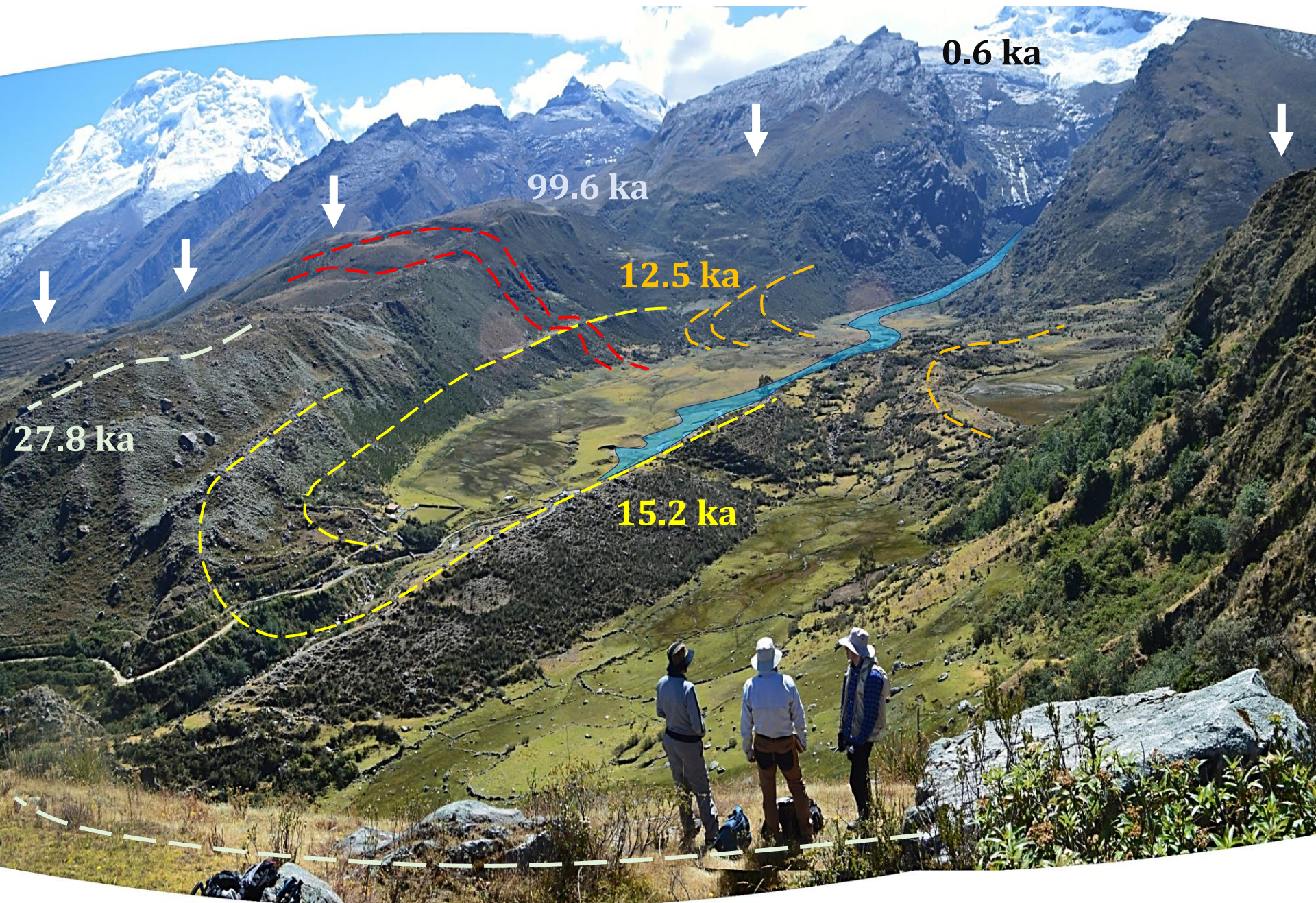
Lima – Perú, Setiembre 2018

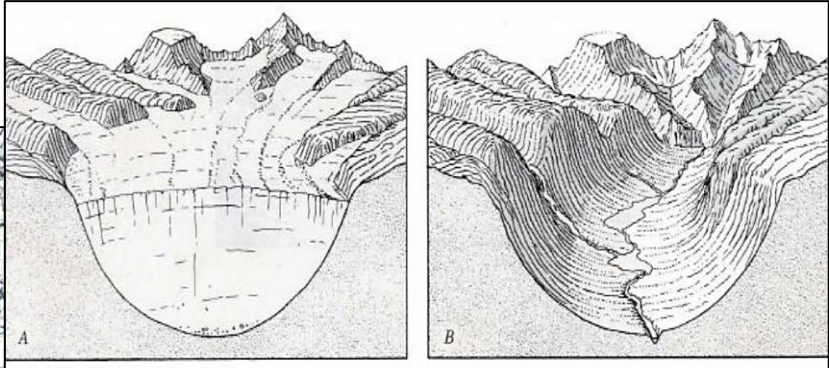
LA GEOMORFOLOGÍA GLACIAL COMO GEOINDICADOR DE LOS CAMBIOS CLIMÁTICOS Y SU IMPORTANCIA PARA LOS RECURSOS HÍDRICOS Y LA PREVENCIÓN FRENTE A LOS PELIGROS GEOLÓGICOS EN EL PAIS



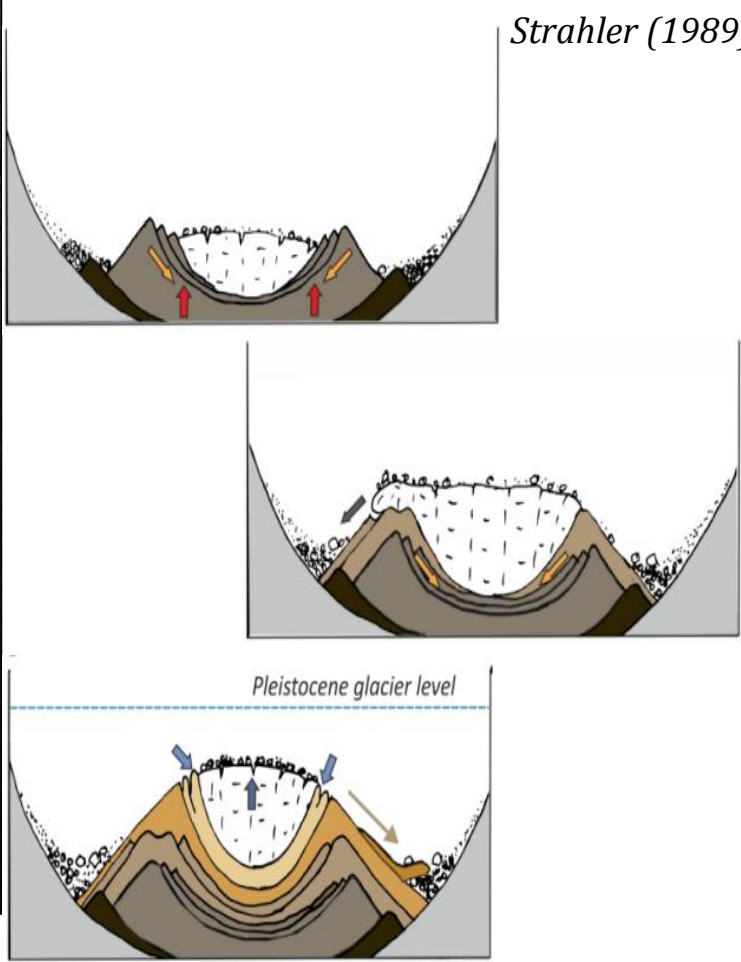
*Nevado Hualcán y Laguna 513 -
Ancash*

Ronald Concha, Pool Vásquez, José Úbeda, Joshua Iparraguirre, Igor Astete & Gonzalo Luna

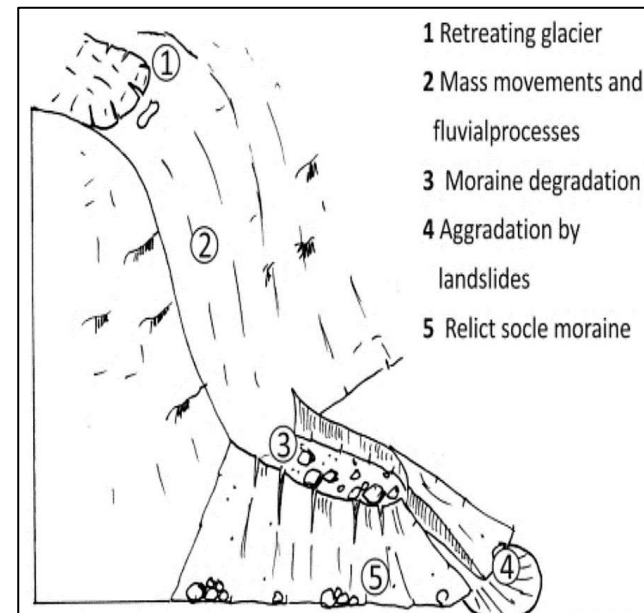
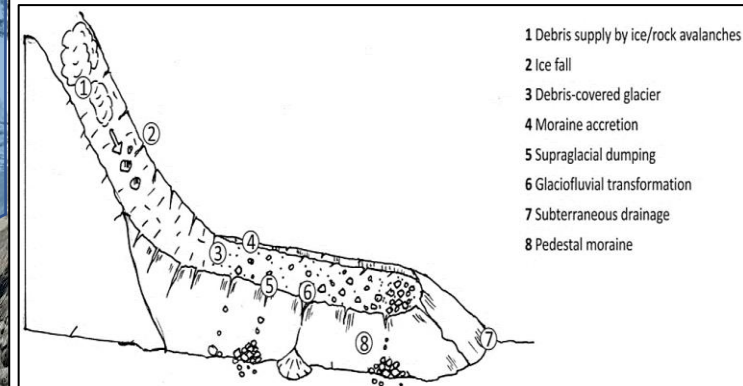
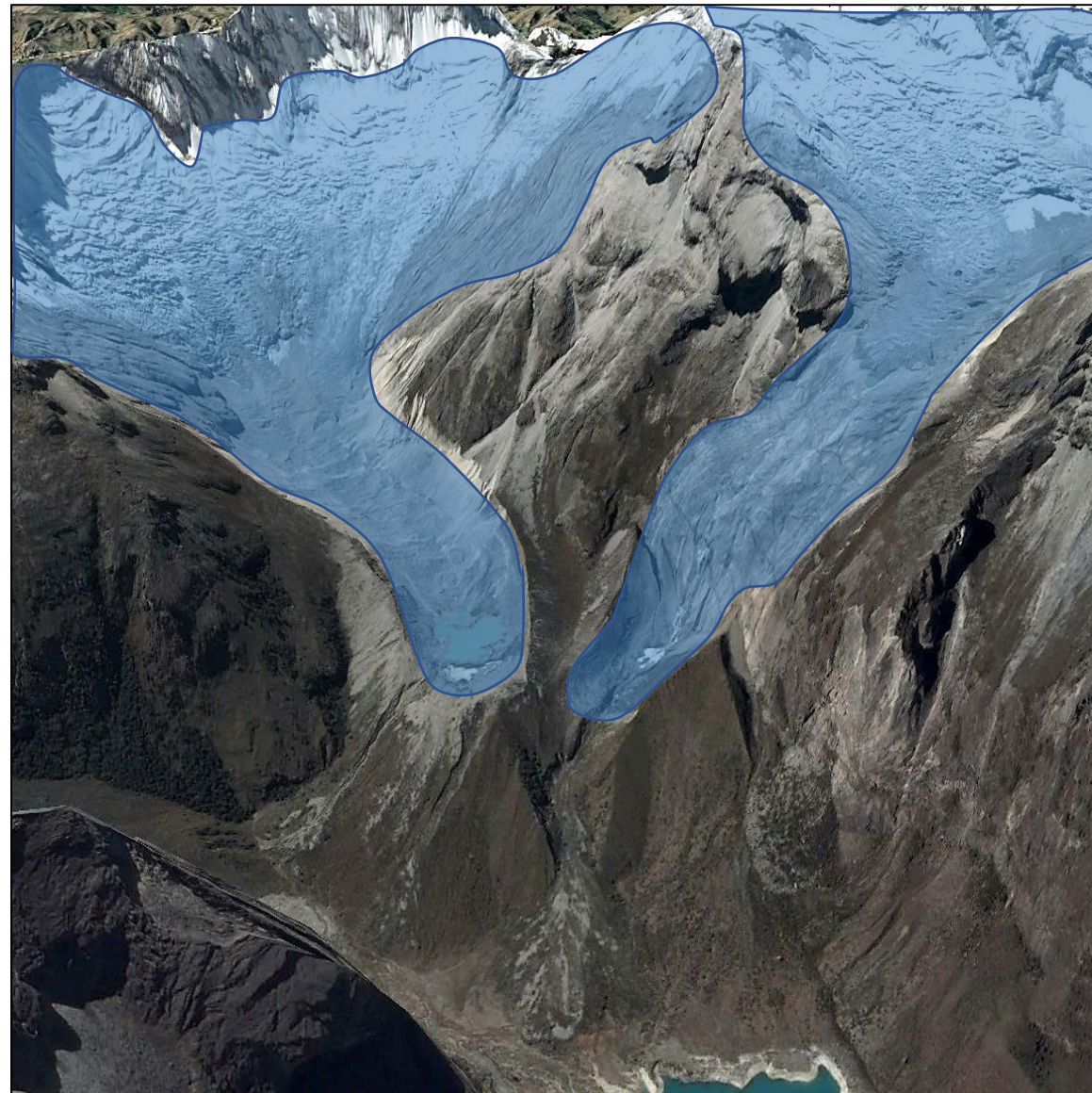




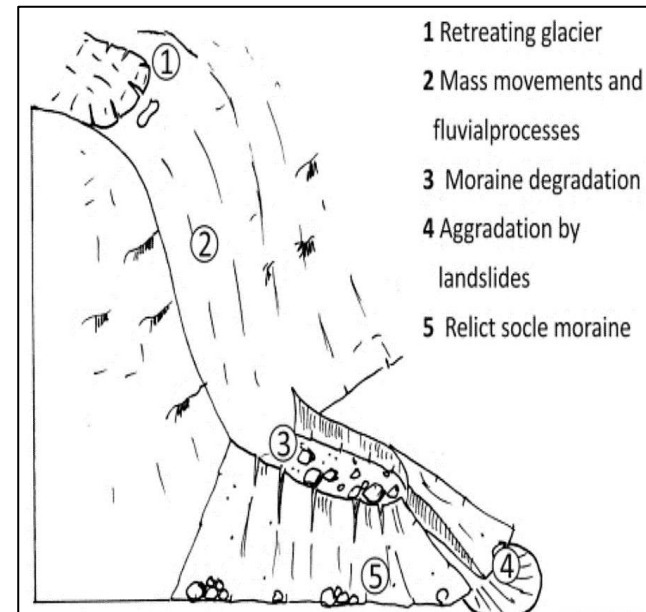
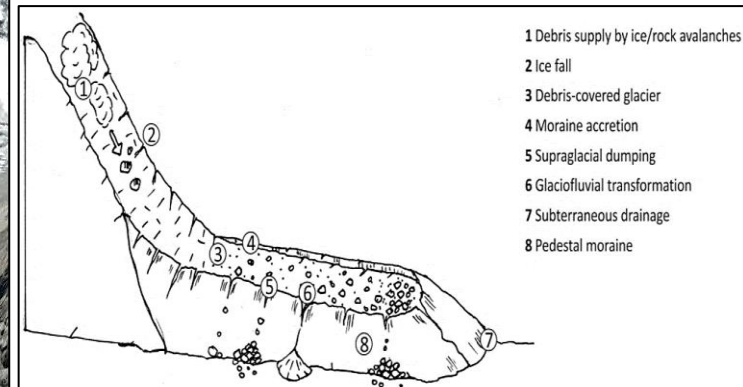
Strahler (1989)



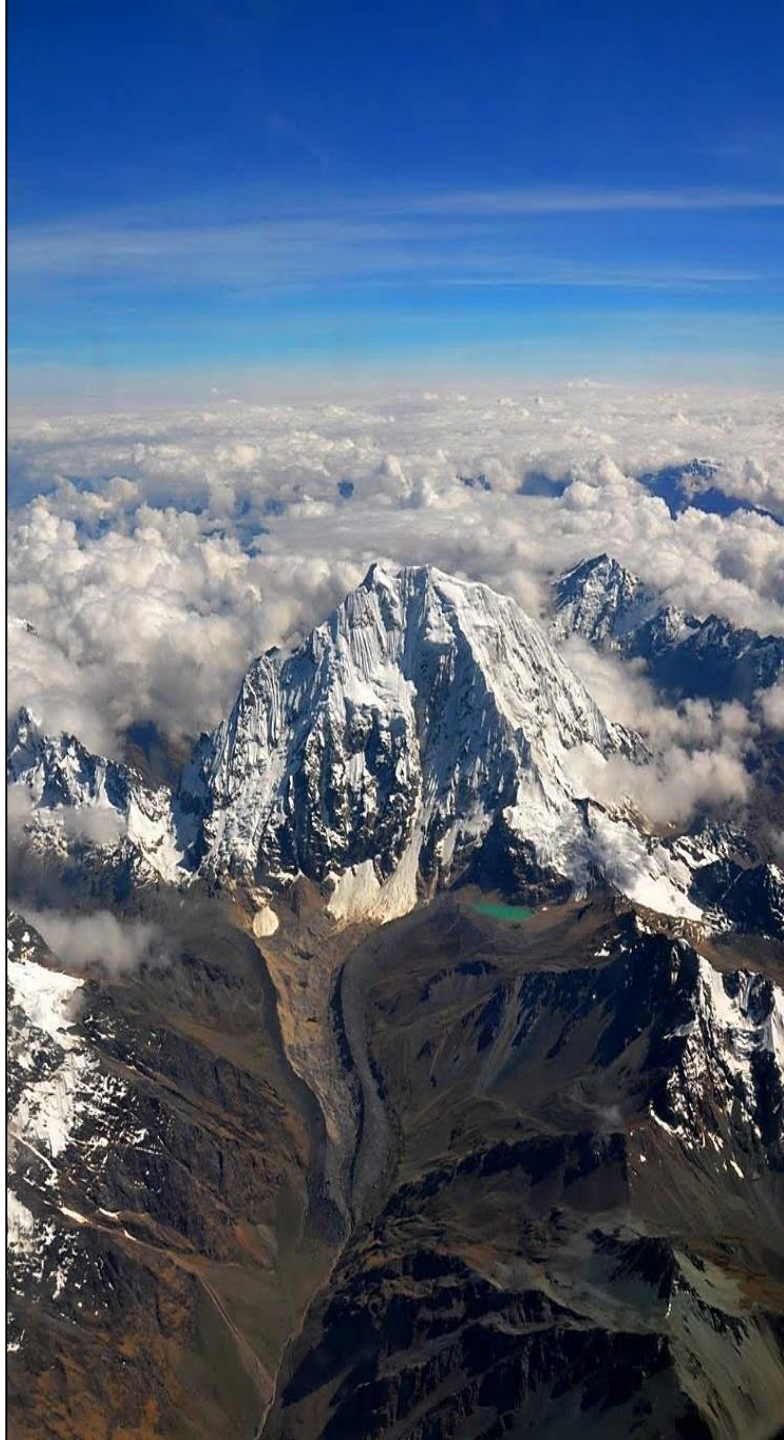
Iturrizaga (2018)



Iturrizaga (2018)



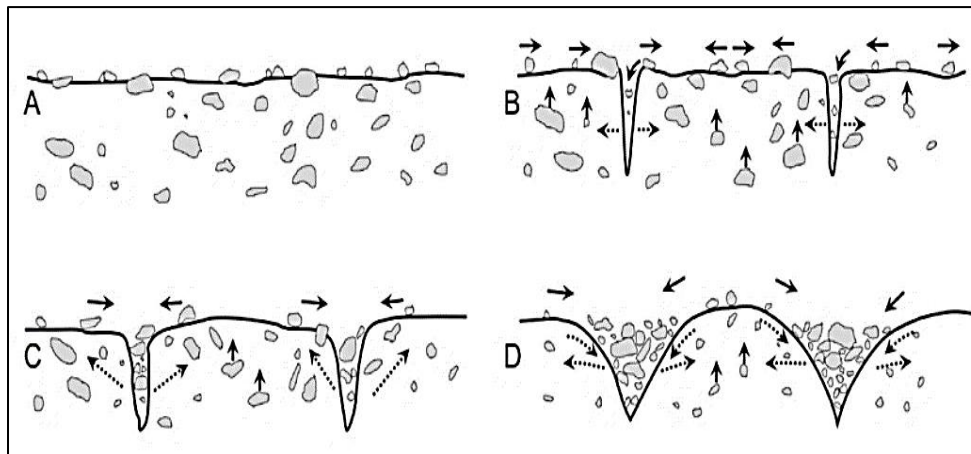
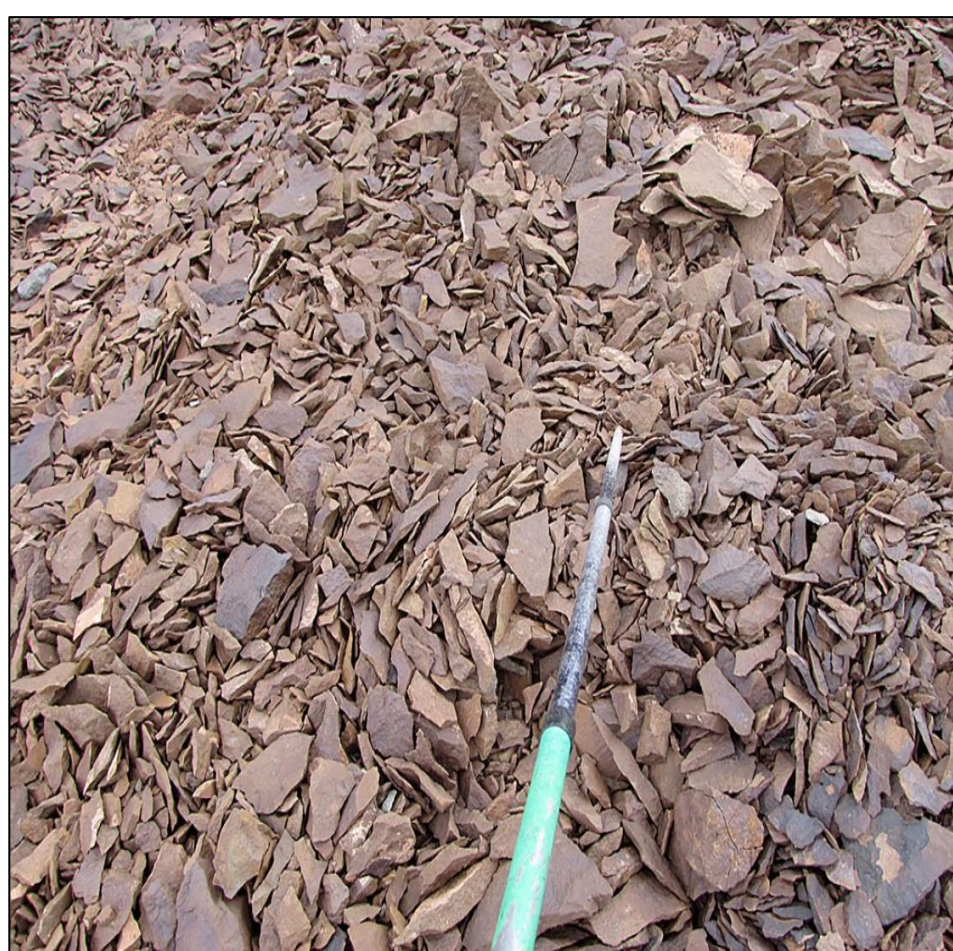
Iturrizaga (2018)



0.37 ka

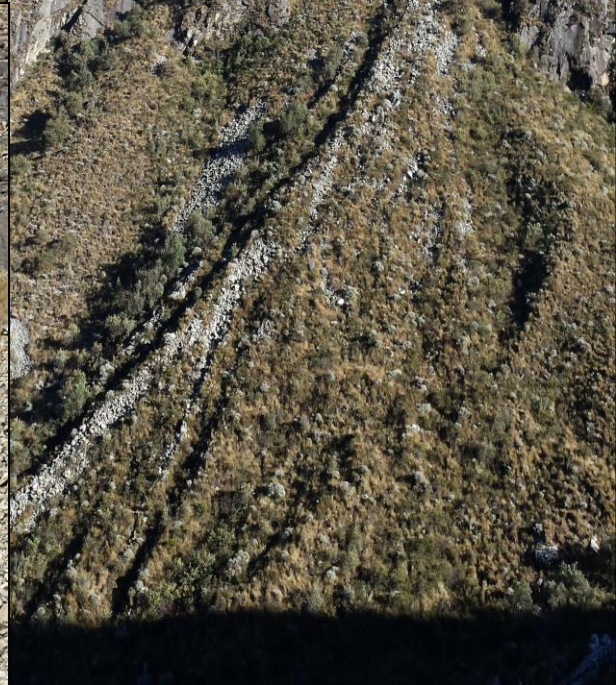
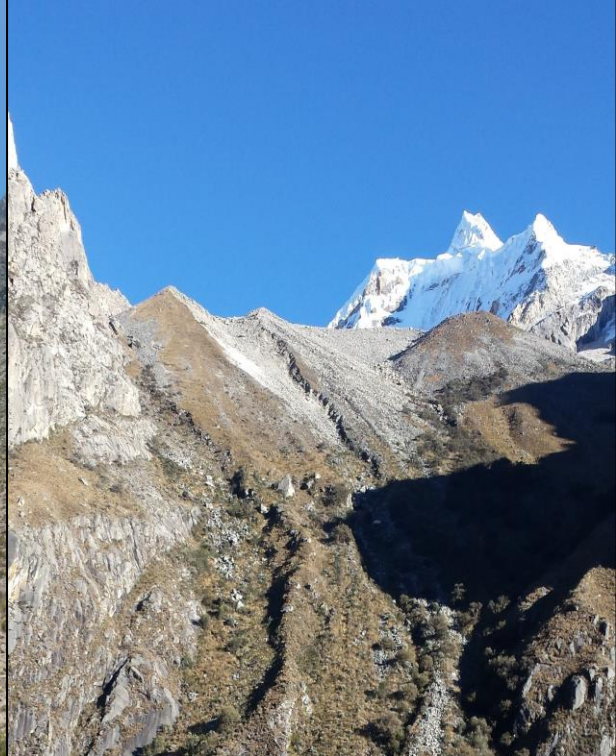
Valle Río
Blanco al
sur del
nevado
Salcantay
(Cusco,
Perú)
Licciardi
(2009)

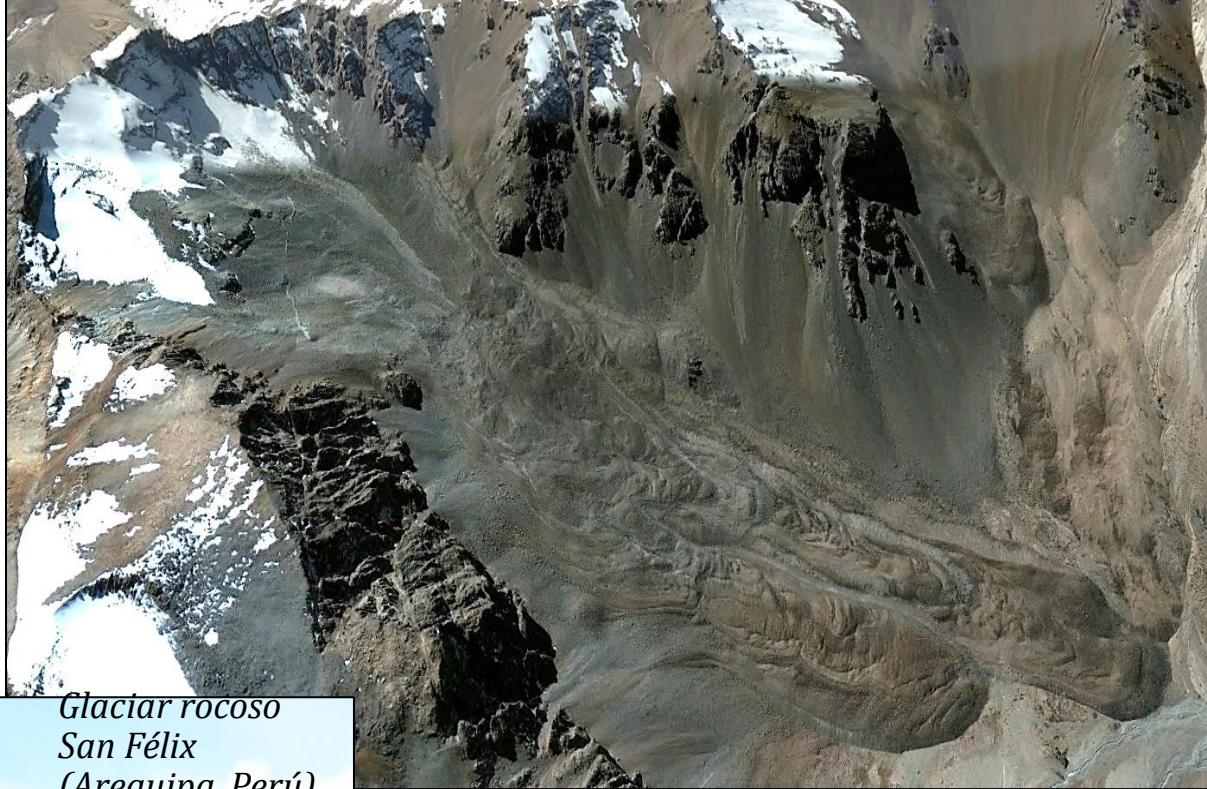
11.12 ka



CCAM (2016)

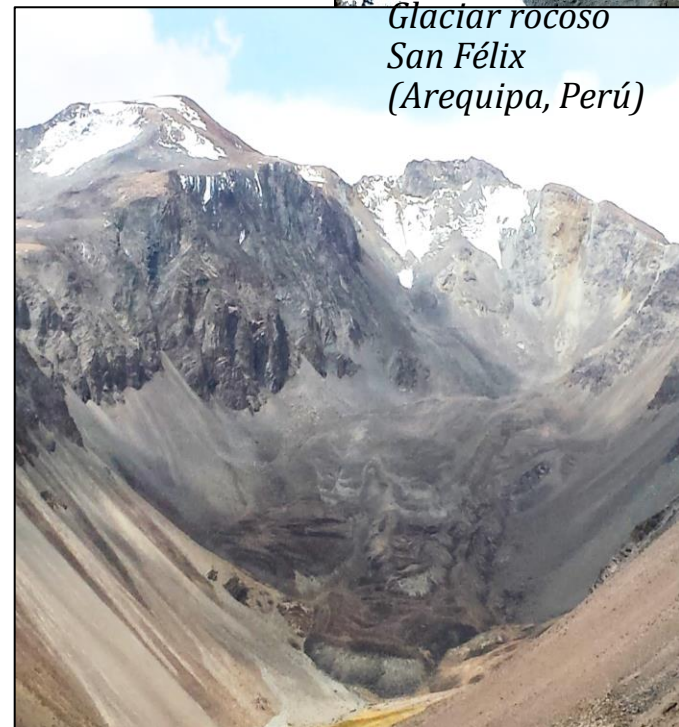
Trombotto et al (2014)
Pissart, 1973



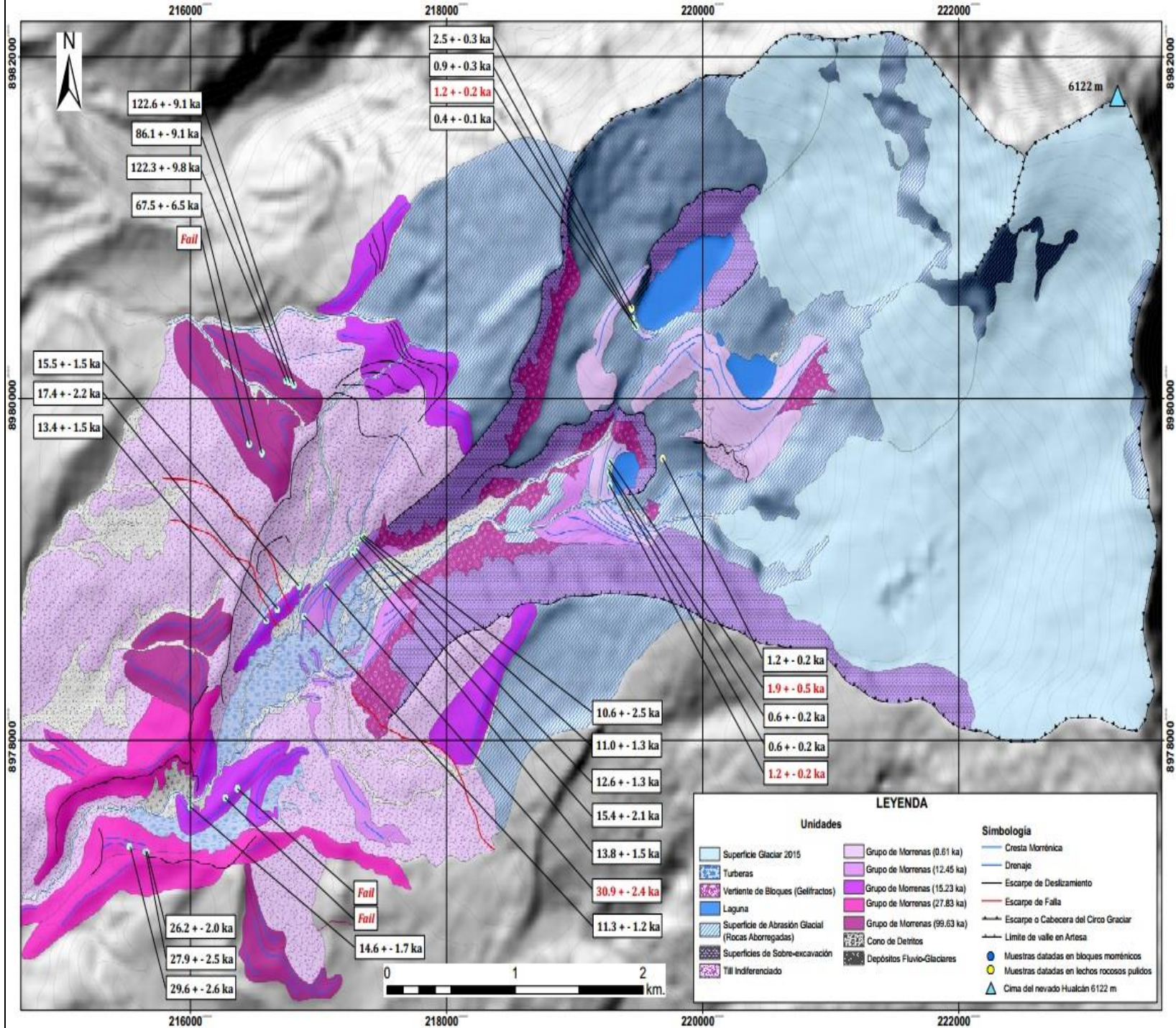


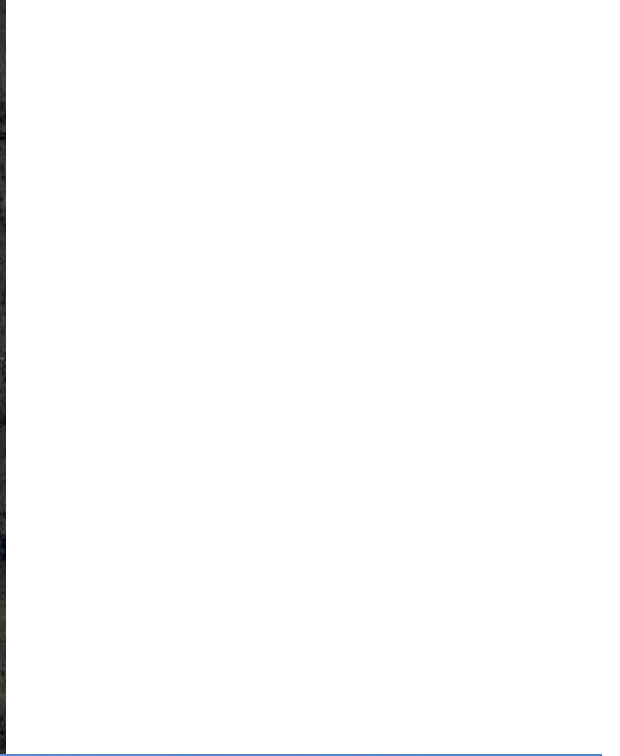
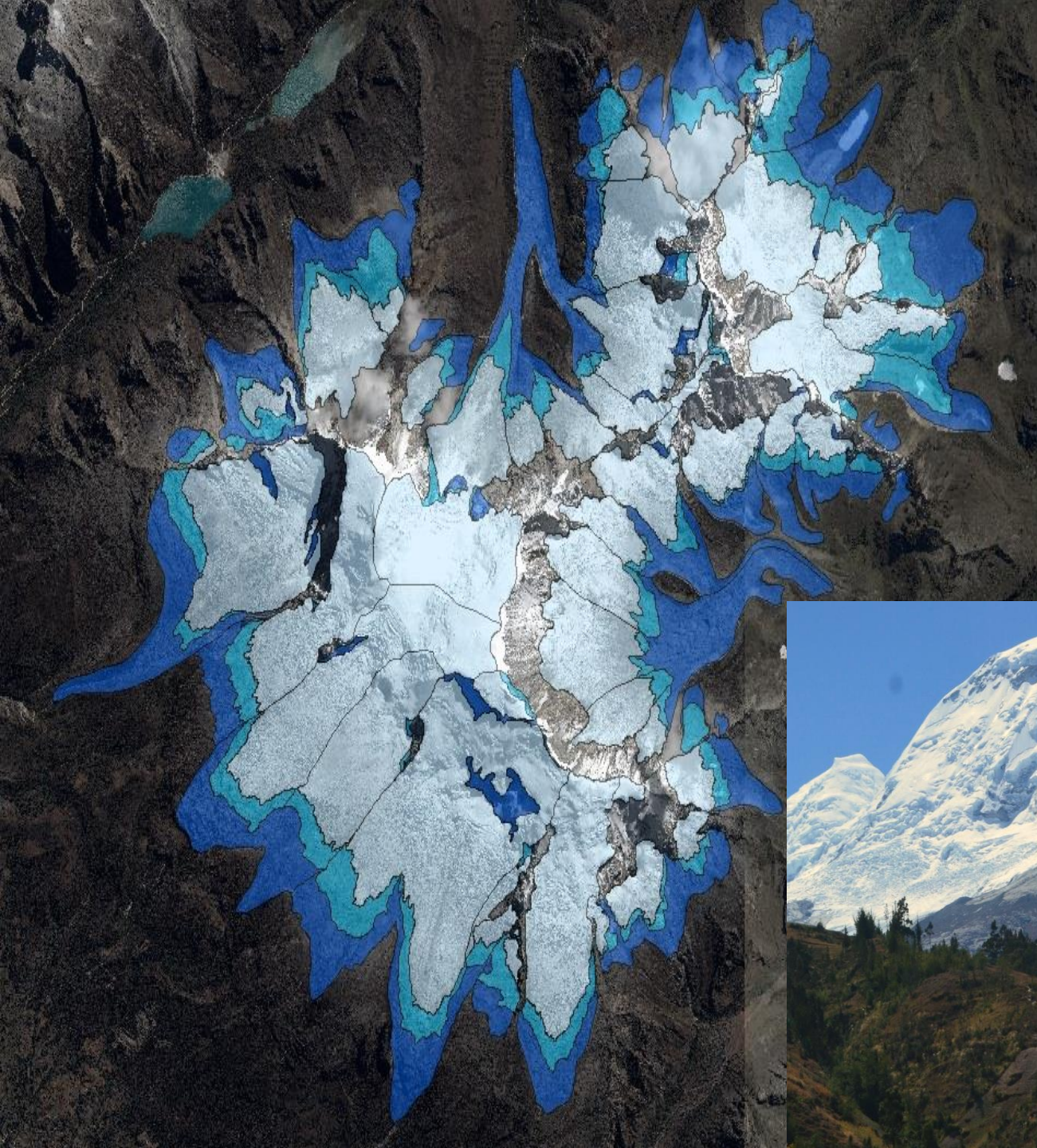
*Glaciar rocoso
San Félix
(Arequipa, Perú)*

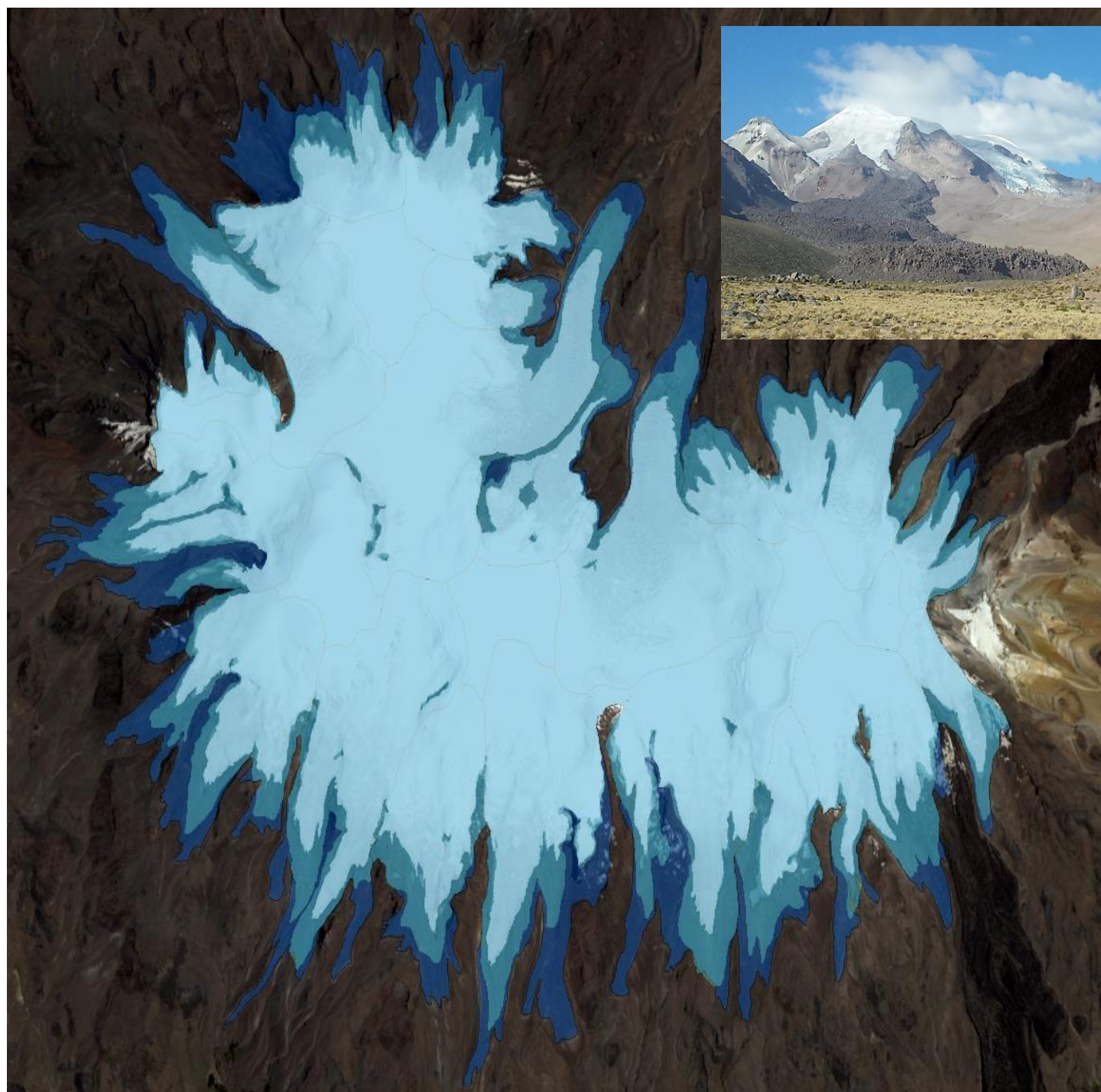
*Glaciar rocoso en la
cabecera de
Villingadalur
(península de
Tröllaskagi, Islandia)
De Andrés (2017)*



RESULTADOS

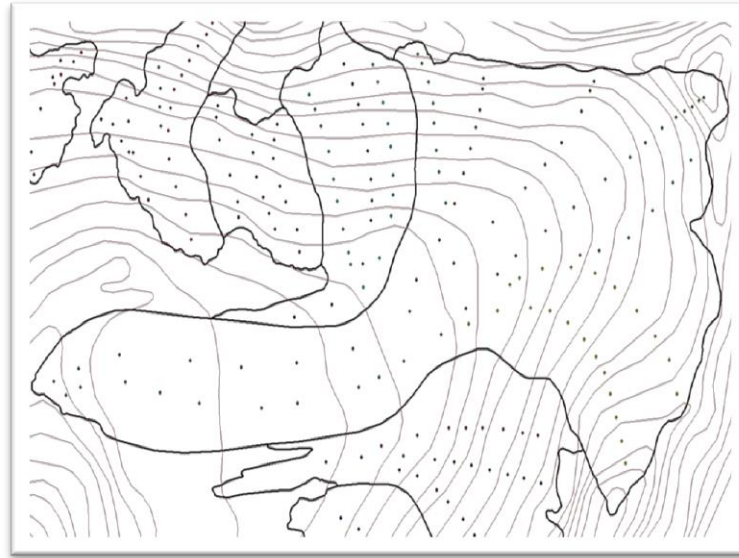






Glab Top
Linsbauer, 2012

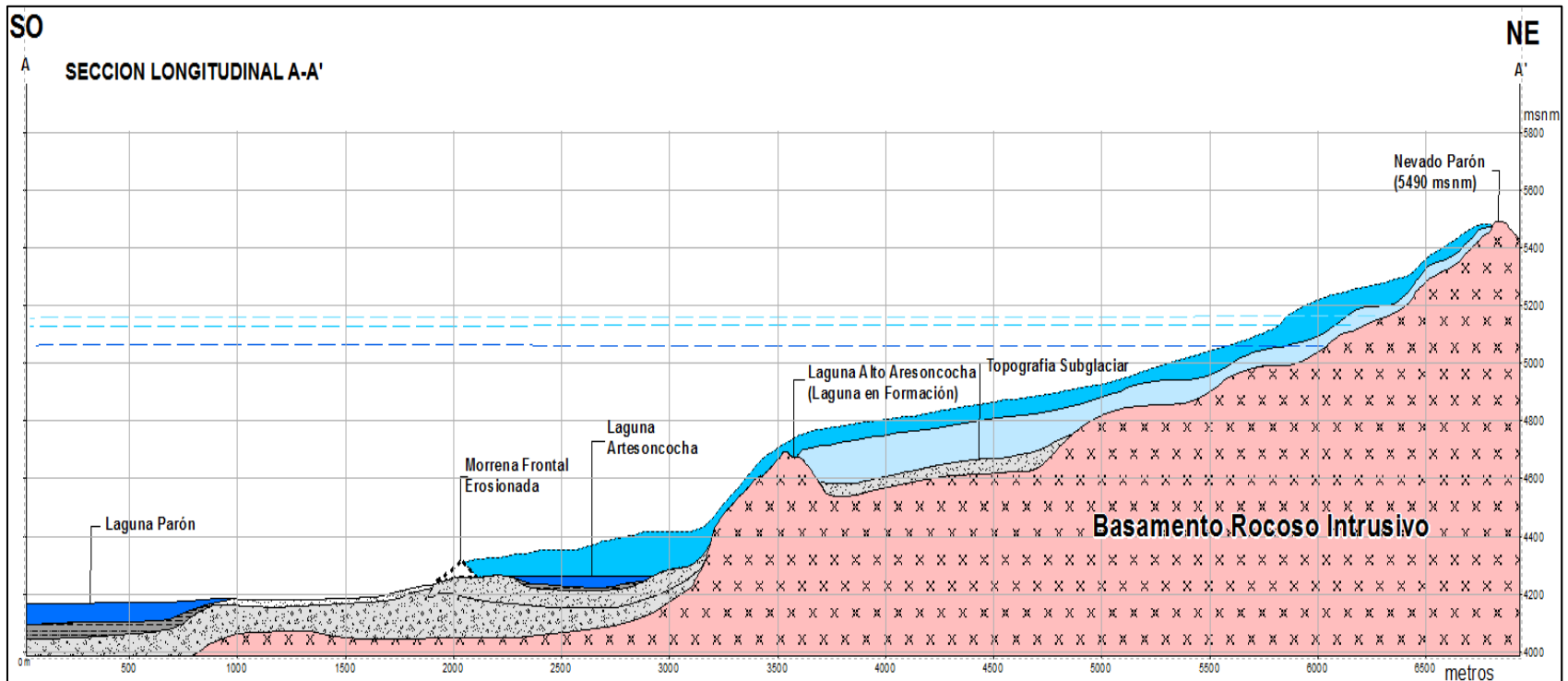
GlaRe
Pellitero, 2016

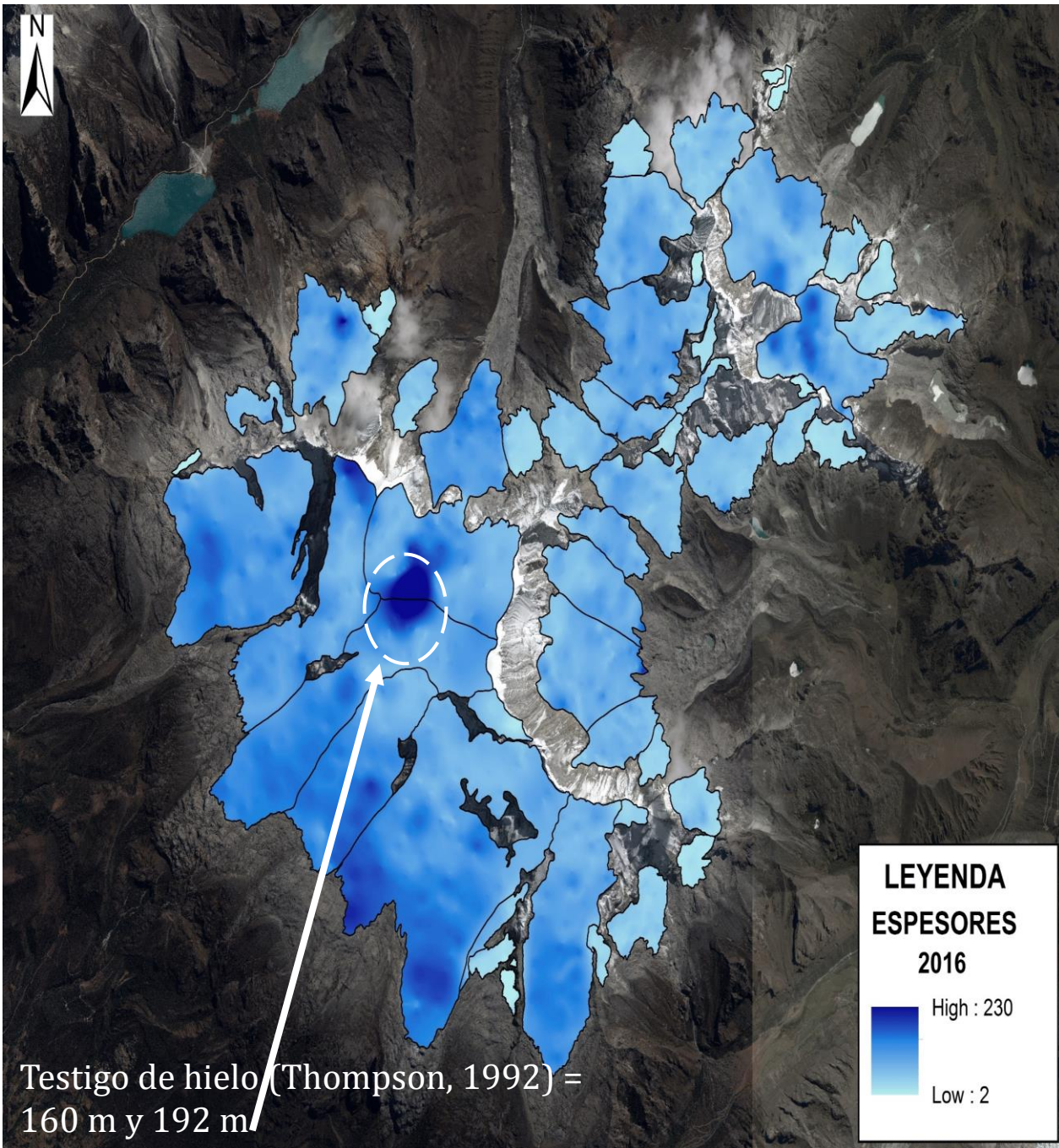


$$d = \frac{\tau}{(\rho g f \sin \alpha)}$$

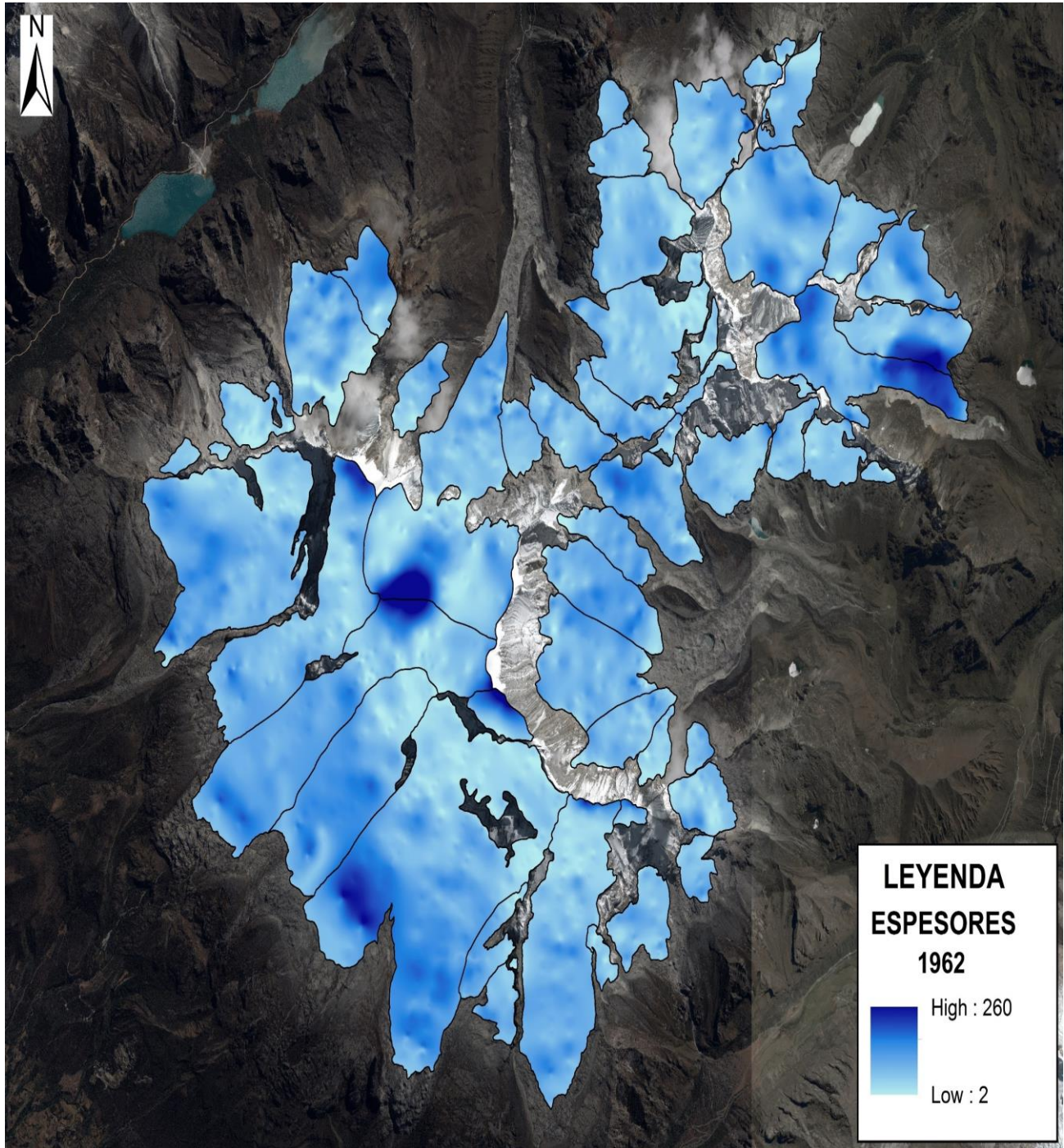
**Haeberli
 &
 Hoelzle
 (1995)**

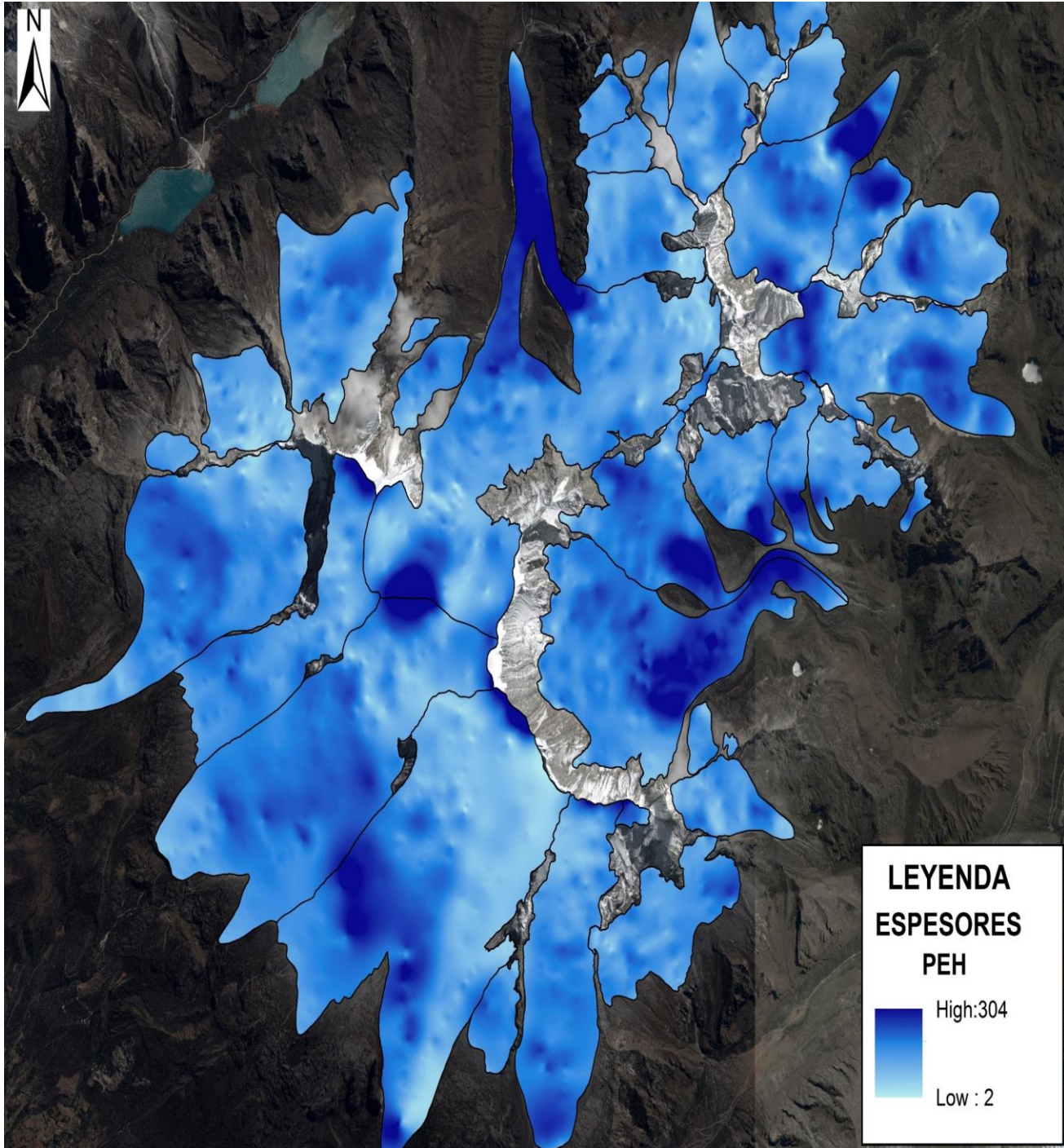
d = Espesor
t = Fricción basal
p = Densidad del hielo
g = Aceleración
 Gravedad
α = Pendiente
f = Factor de forma











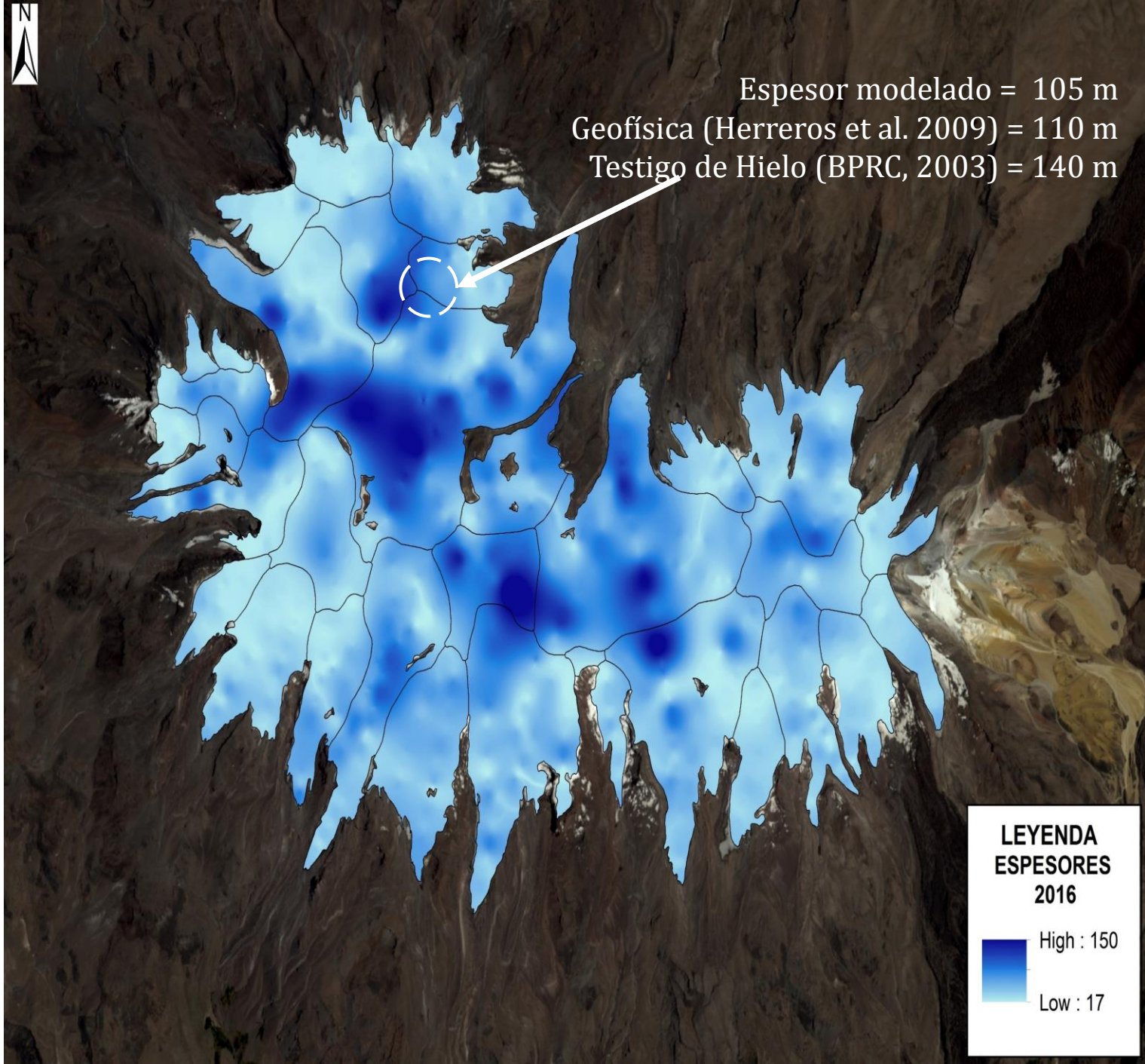
LEYENDA
ESPEORES
PEH

High:304

Low : 2

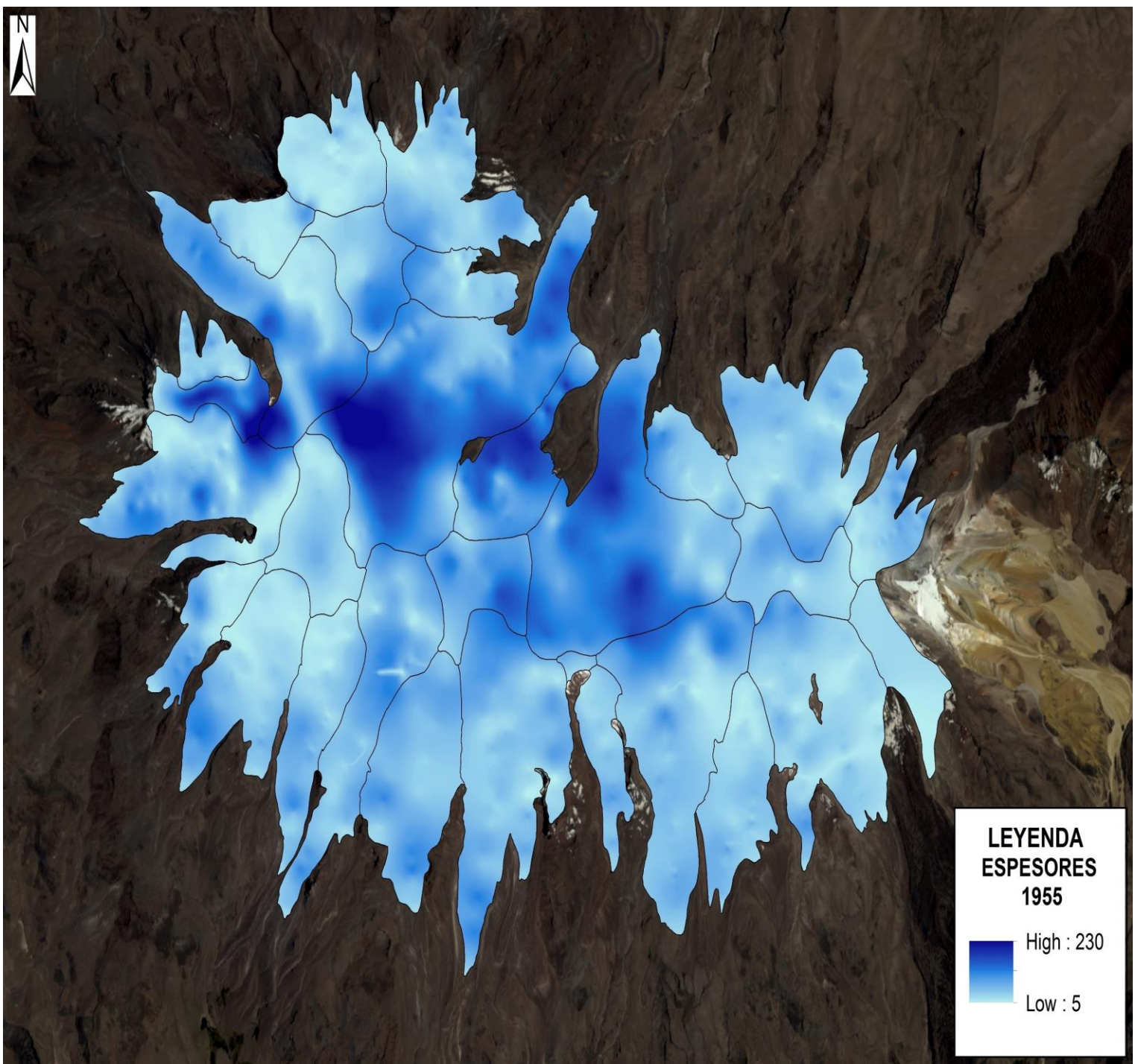


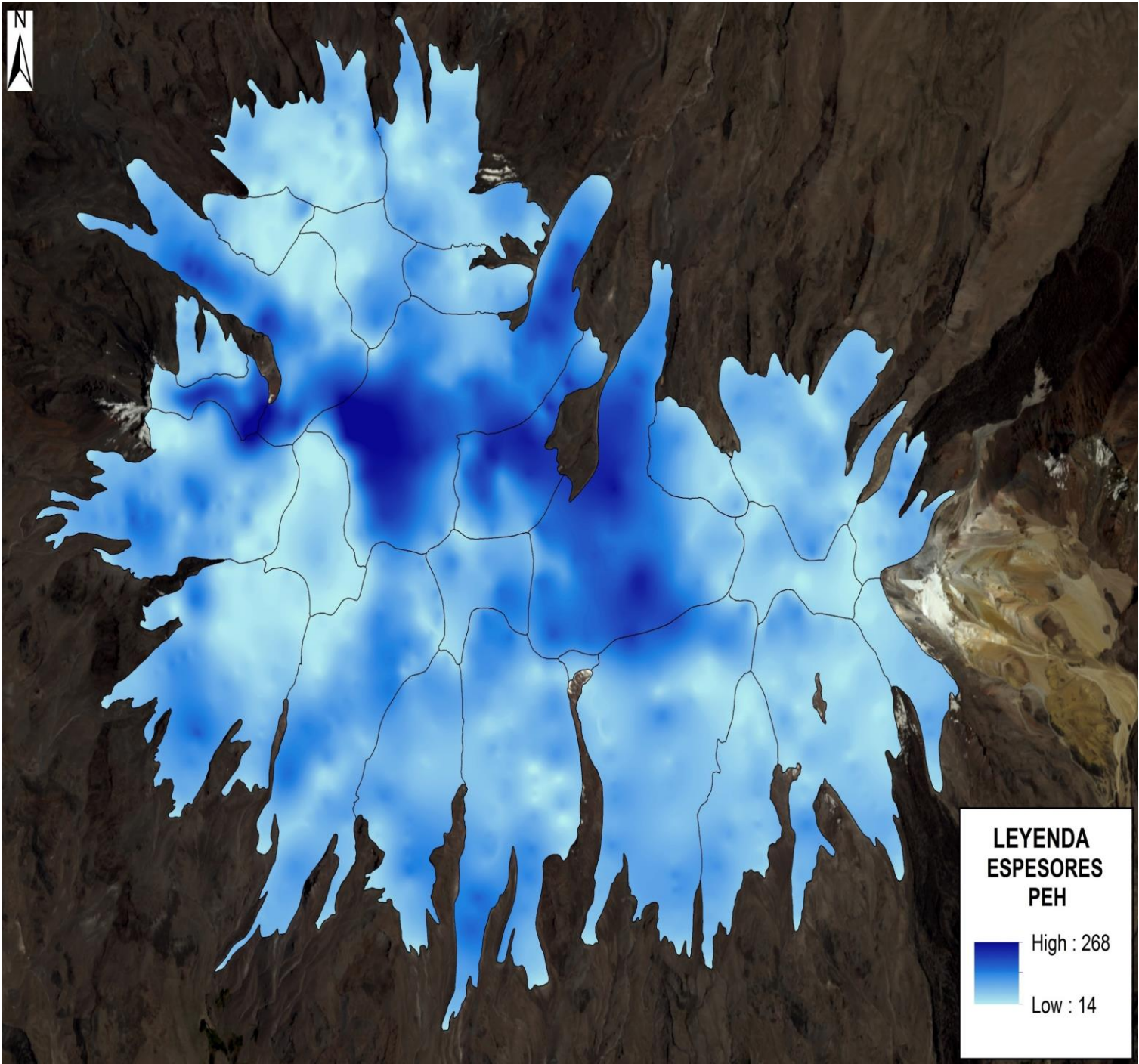
Espesor modelado = 105 m
Geofísica (Herreros et al. 2009) = 110 m
Testigo de Hielo (BPRC, 2003) = 140 m

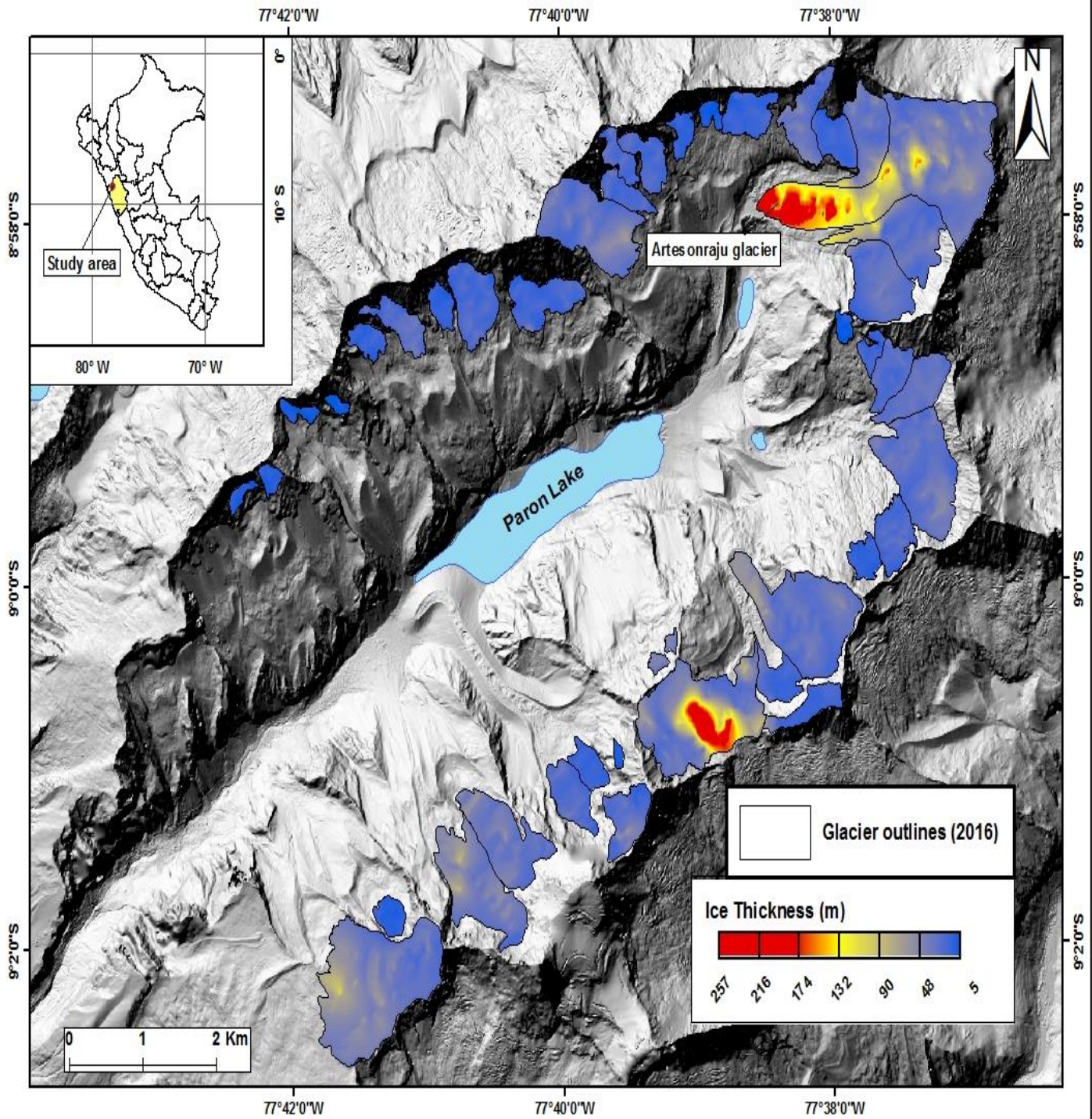


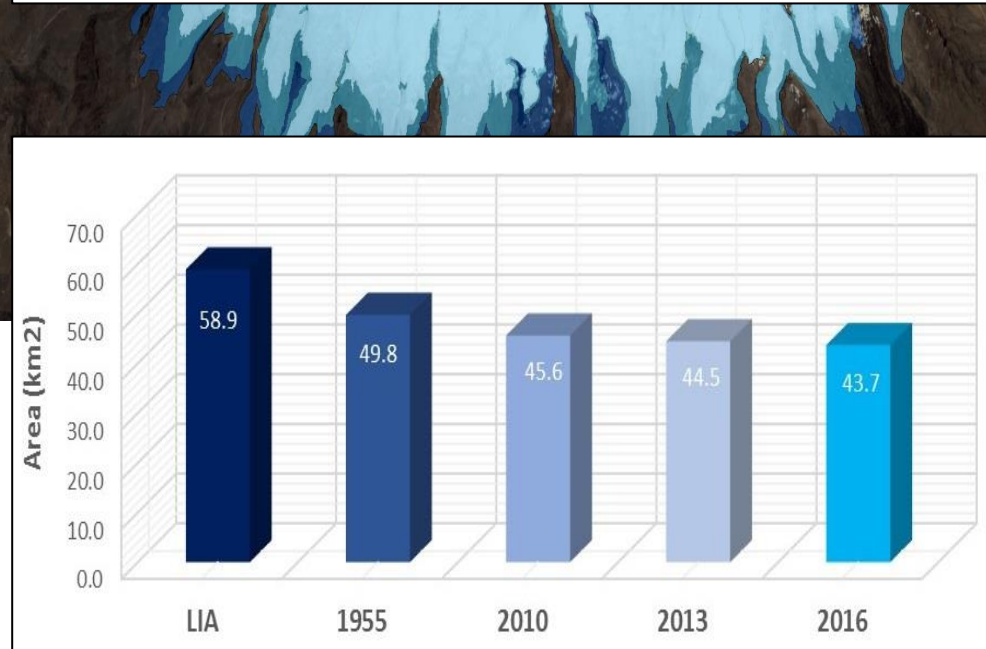
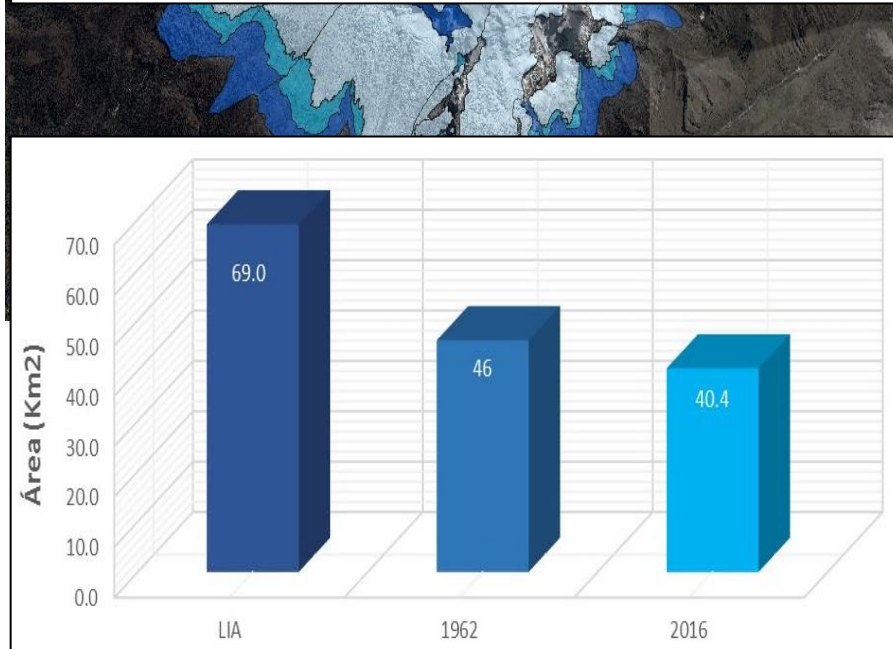
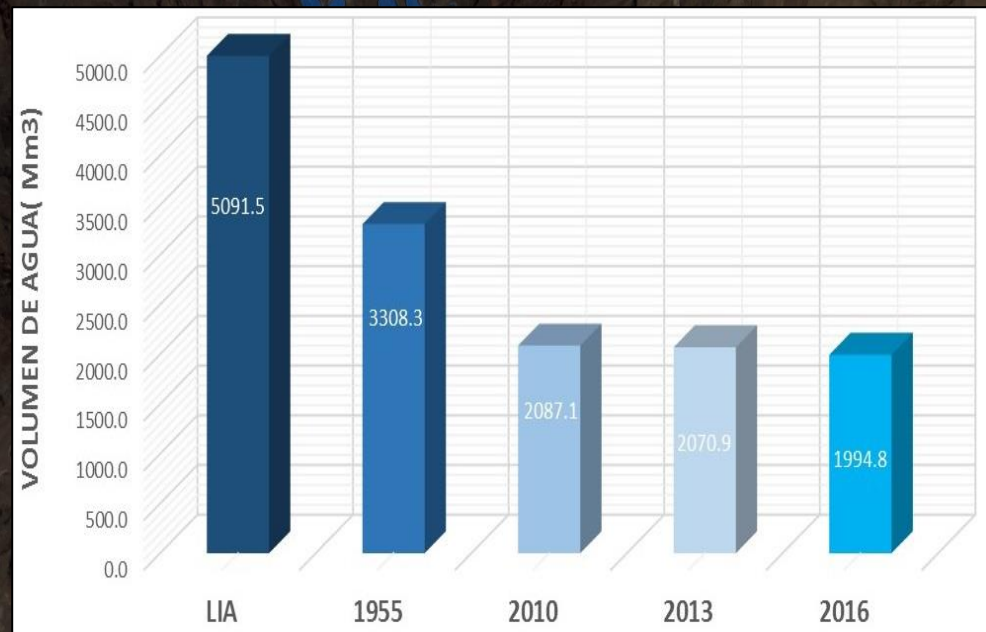
**LEYENDA
ESPESORES
2016**

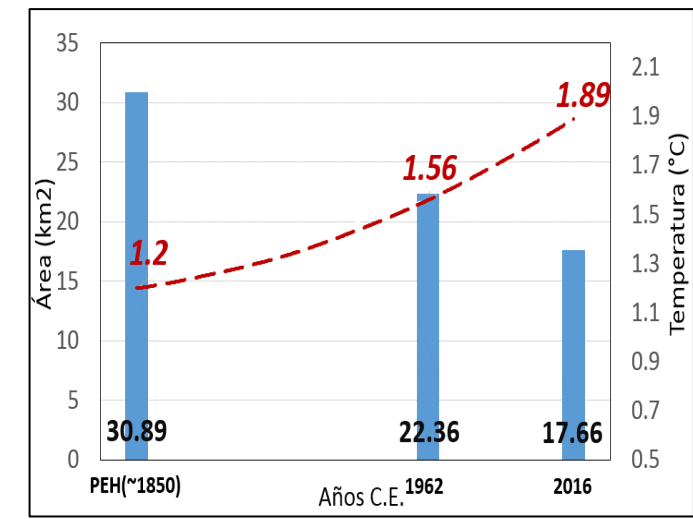
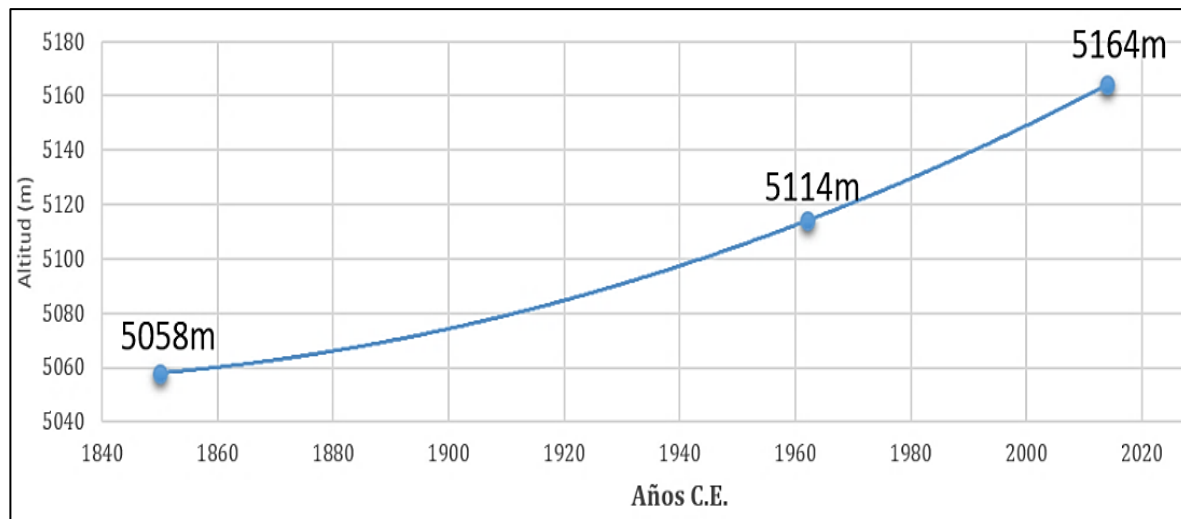
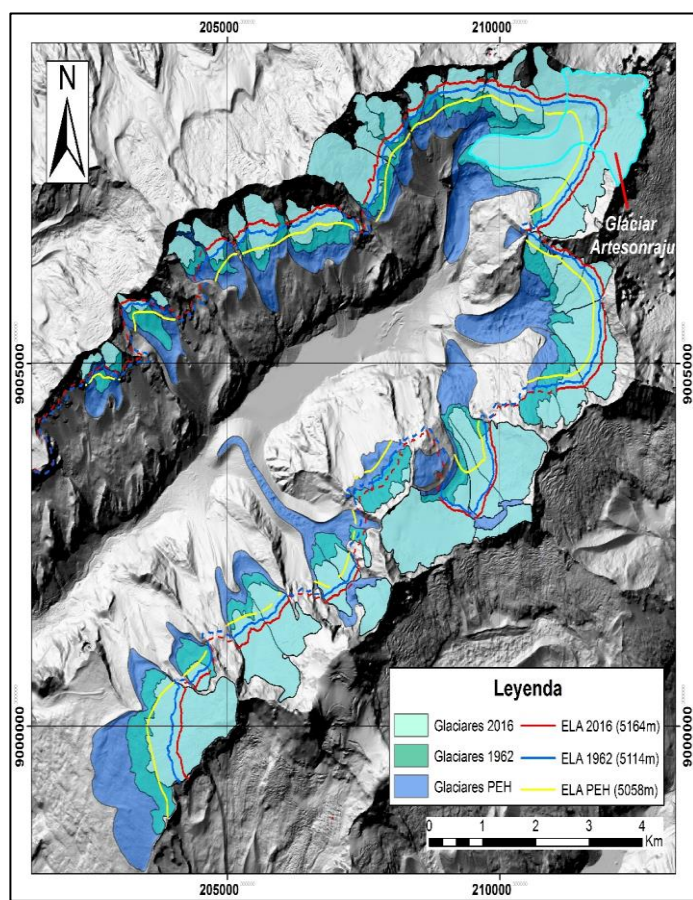
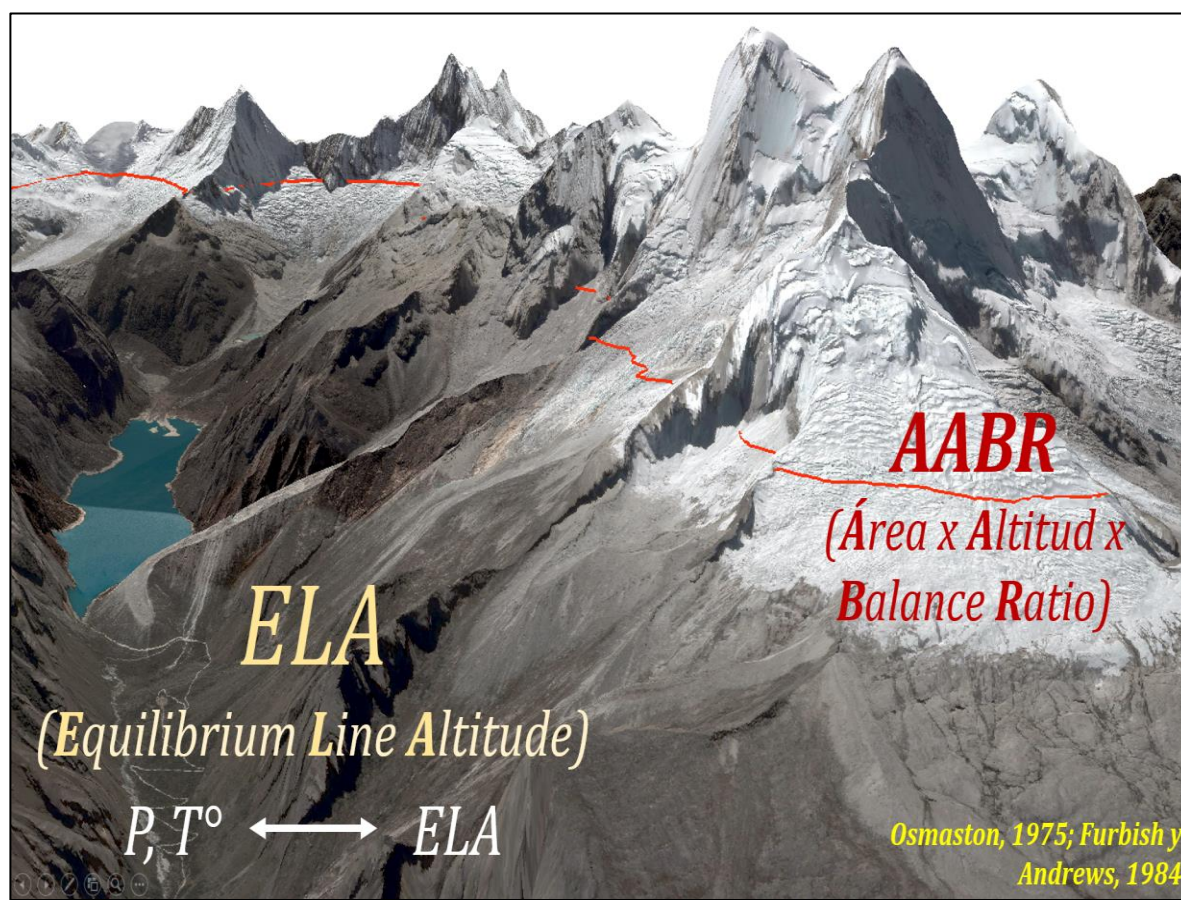
High : 150
Low : 17







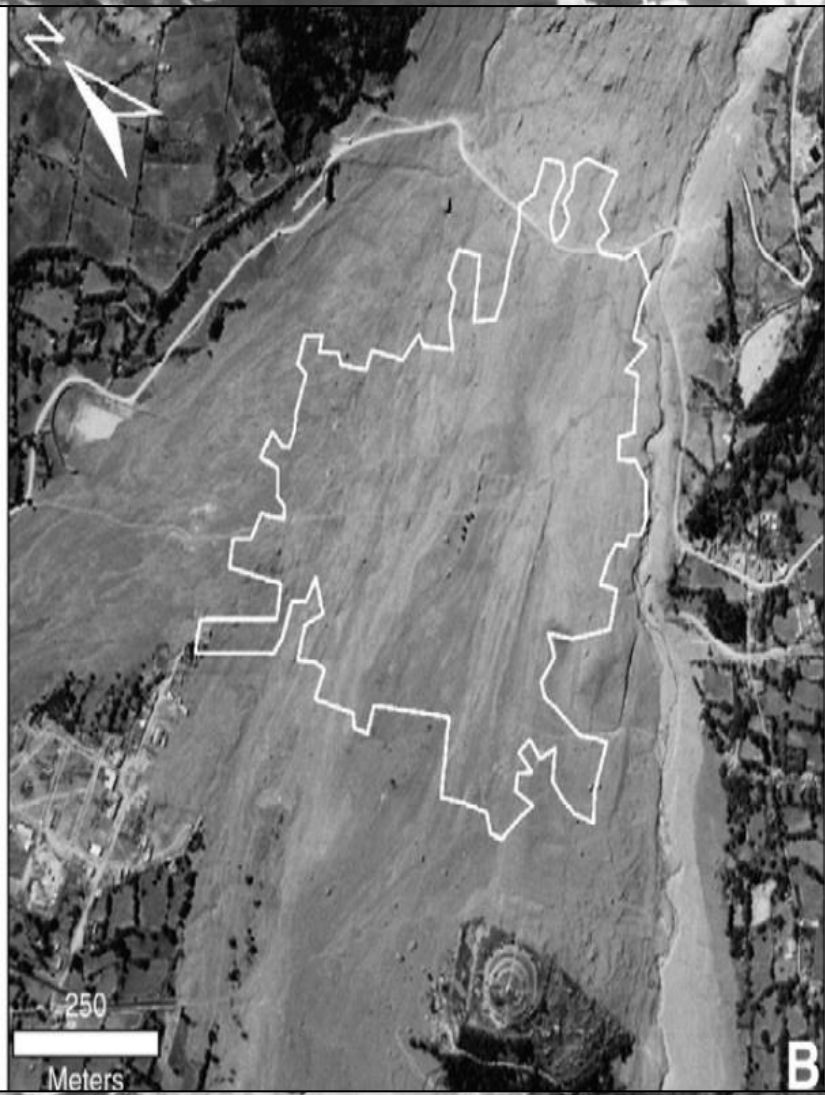


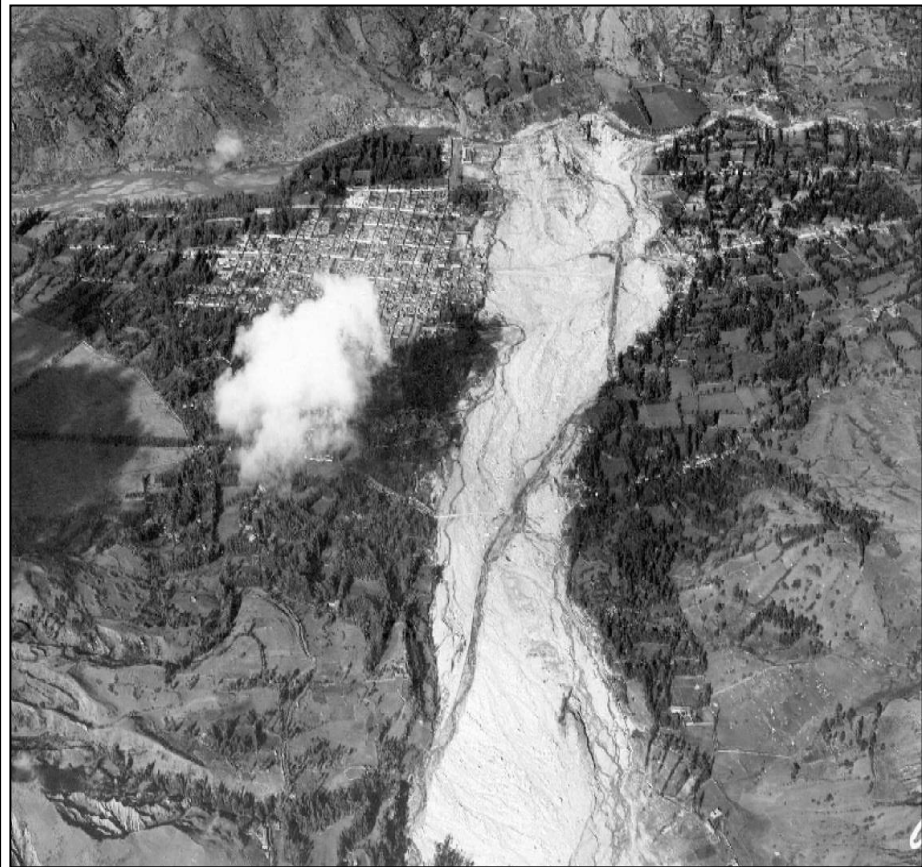
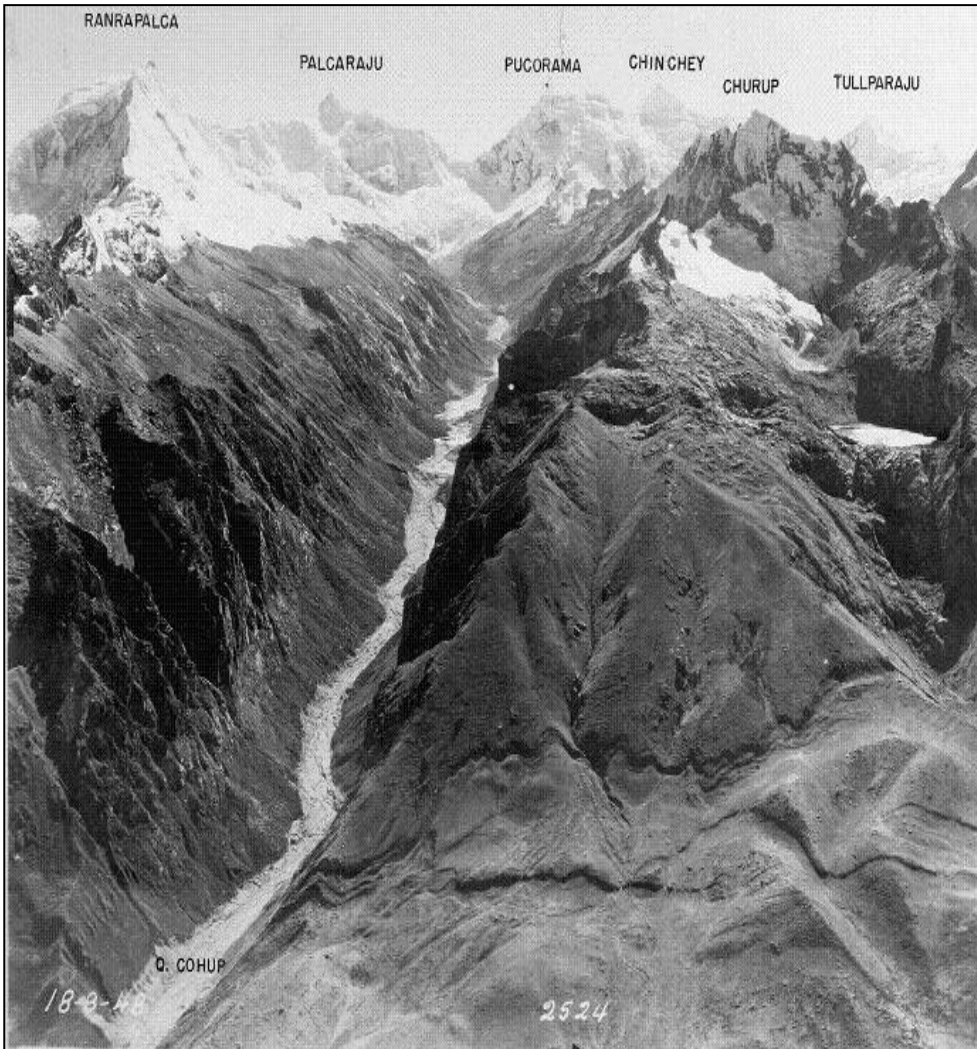


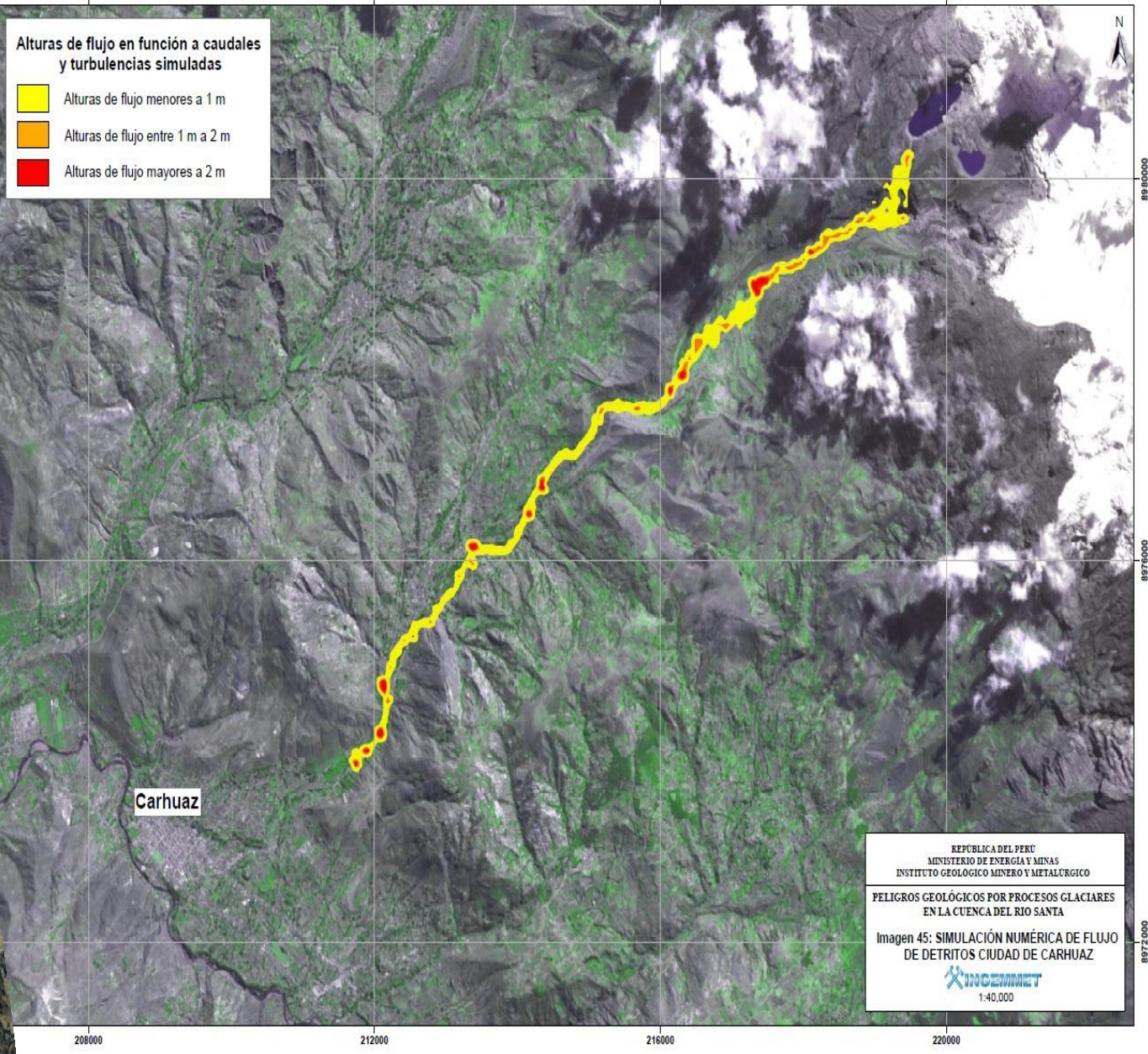
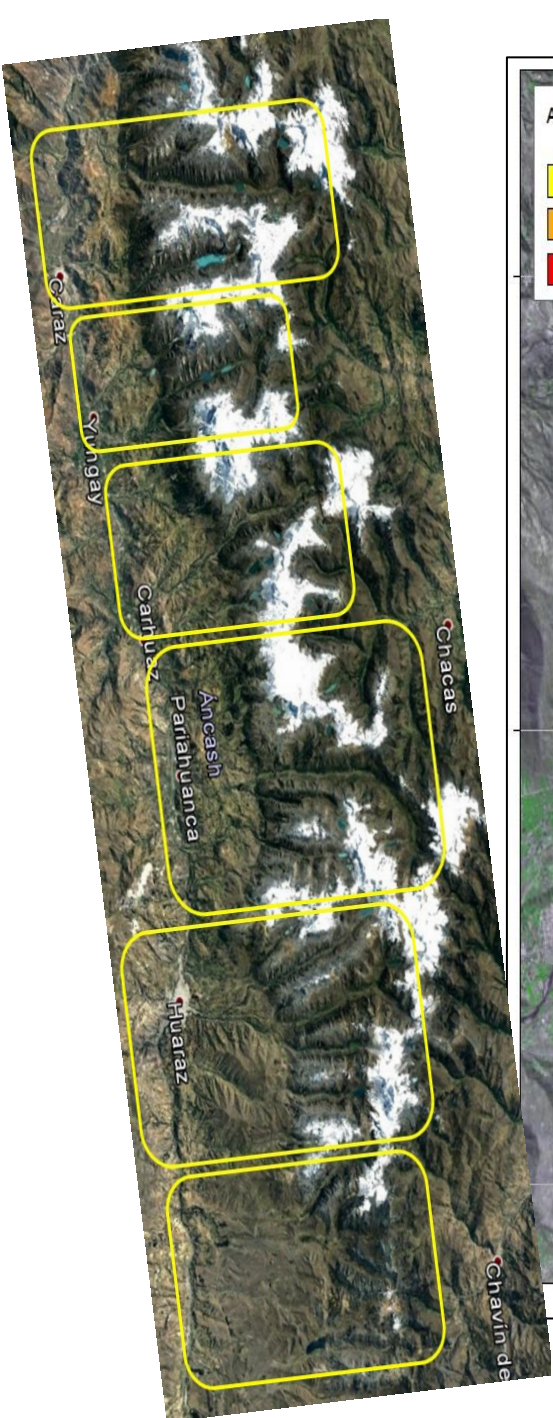




6-8-37







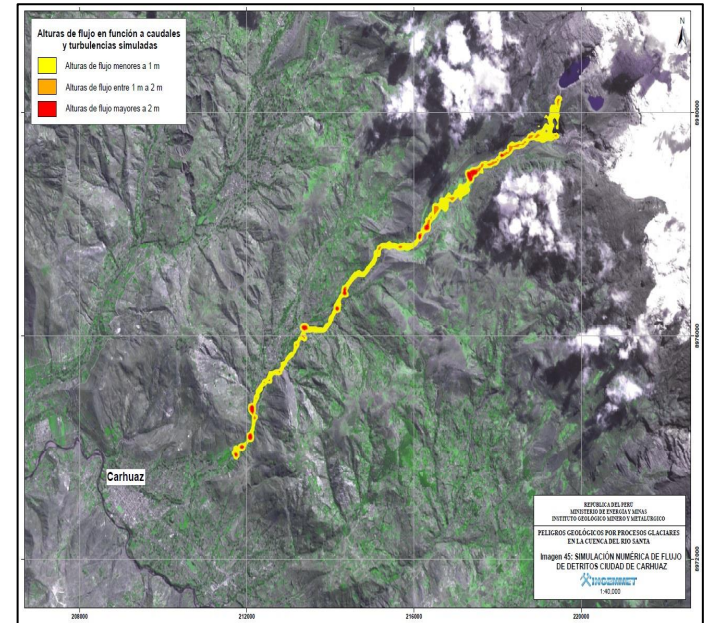
REPÚBLICA DEL PERÚ
 MINISTERIO DE ENERGÍA Y MINAS
 INSTITUTO GEOLOGICO MINERO Y METALURGICO

PELIGROS GEOLÓGICOS POR PROCESOS GLACIARES
 EN LA CUENCA DEL RIO SANTA

Imagen 45: SIMULACIÓN NUMÉRICA DE FLUJO
 DE DETRITOS CIUDAD DE CARHUAZ

INGENMET
 1:40.000

PERSPECTIVAS DE LA INVESTIGACIÓN





Muchas Gracias