

GLACIAL AND PHYSIOGRAPHIC MAP OF THE SALAT-PALLARESA AREA by J. ZANDVLIET Scale 1:100.000



- Nearly horizontal denudation surface, dipping less than 10° with indication of altitude (in brackets: altitude of isolated worn-down hill)
- Old weathered sloping surface with indication of amount and direction of dip
- Area with glacial landforms
- Area without glacial landforms
- Glacial deposits
- Accumulation terrace, possibly kame terrace
- Erosion terrace
- Glacial cirque
- Semi-circular step in valley floor
- Widened valley floor
- Glacial basin outside névé area
- Post-glacial gorge

GEOLOGICAL MAP OF THE CENTRAL PYRENEES

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Map and text prepared by J. ZANDVLIET

SHEET 5
PALLAROSA - SPAIN
Scale 1:50,000



QUATERNARY

- Alluvium
- Alluvial fan
- Accumulation terrace
- Glacial deposits
- Langlois
- Rockstrams ("épiglaciales")

MESOZOIC and TERTIARY

- Limestones, shales etc. undifferentiated, JURASSIC and LOWER CRETACEOUS with Alpine metamorphism: marmorisation and scapolitisation
- Ophiolites and diorites
- Lower Cretaceous intrusives

CARBONIFEROUS

- Micaschists, dark shales, towards the West with intercalated dark sandstones and greywackes, rarely with slaty limestone lenses. Exact age unknown

DEVONIAN

- Variiegated nodular limestones ("grotte"), alternating with variegated shales
- West of Pallaresa river indistinguishable from the lower part of Devonian
- In the northern zone grey to dark-blue, dense to slaty limestones, alternating with
- Greenish-grey to bluish-black shales, passing into more sandy varieties W. of Bonabé (on the map a line --- has been drawn, which separates the more sandy shales in the West from the pure shales in the East)
- In the Llesca - Artigue and Angouls valleys and E. of the Fourquet river mostly undifferentiated
- In the southern zone green-grey limy shales and grey limestones, in the Moseny and Tesó area passing into sandstone limestones

SILURIAN

- Blue, pyritic and carbonaceous shales, locally with black or grey limestone lenses

CAMBRO-ORDOVICIAN

- Grey to brown slaty limestones and limy shales
- White to light-brown, unstratified, coarse crystalline calcareous
- White massive or coarse crystalline marbles
- Banded quartzitic limestones ("barrégiennes")
- Bluish-black shales
- Coarse, oligomict conglomerates
- Grey, massive sandstones, quartzites and fine-grained conglomerates ("mura-conglomerats")
- Grey, to dark-blue sandy and quartzitic shales and phyllites
- White and black (locally red and black) banded quartzitic shales and phyllites, ("Schistes rubanes")
- Grey, to bluish-black shales and phyllites
- Reddish-black, ferruginous phyllites
- Grey limestones and limy shales, locally with thin quartzitic or slate intercalations

LATE CARBONIFEROUS INTRUSIVES

- Diabase-granodiorite to quartz-diorite
- Granite dykes
- Porphyritic dykes and sills
- Contact aureole

METAMORPHIC FACIES OF CAMBRO-ORDOVICIAN

- Western limit of the epimetamorphic zone of the Aston-massif
- Western limit of the post-kinematic biotite zone of the Aston-massif

Strike and dip of cleavage

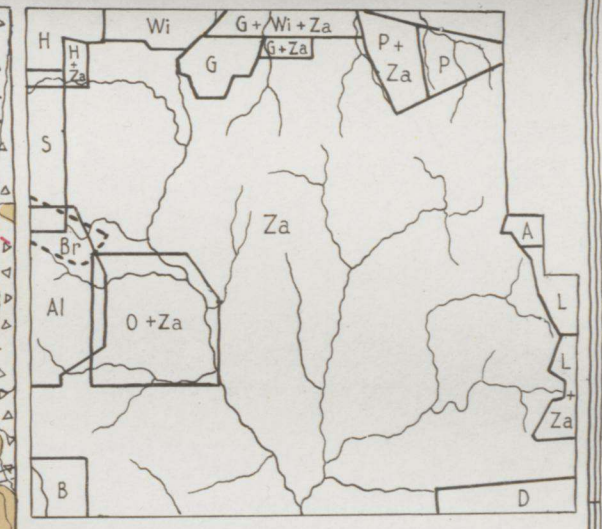
- 0° - 20°
- 21° - 40°
- 41° - 60°
- 61° - 90°

Direction and plunge of lineation

- 0° - 20°
- 21° - 40°
- 41° - 60°
- 61° - 90°

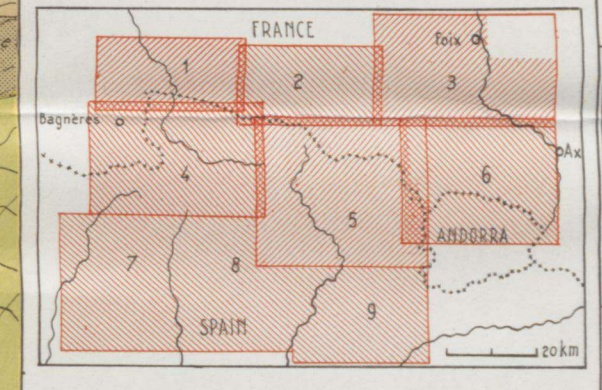
Other symbols:

- δ fossil locality
- Normal contact
- Transitional contact
- Fault
- Macro-joint
- Source
- Sinkhole
- * Economic deposits
- Abandoned mine
- A - Asbestos
- Cu - Copper
- Fe - Pyrite
- Pb - Galena
- T - Talc
- Zn - Sphalerite



Geology by:

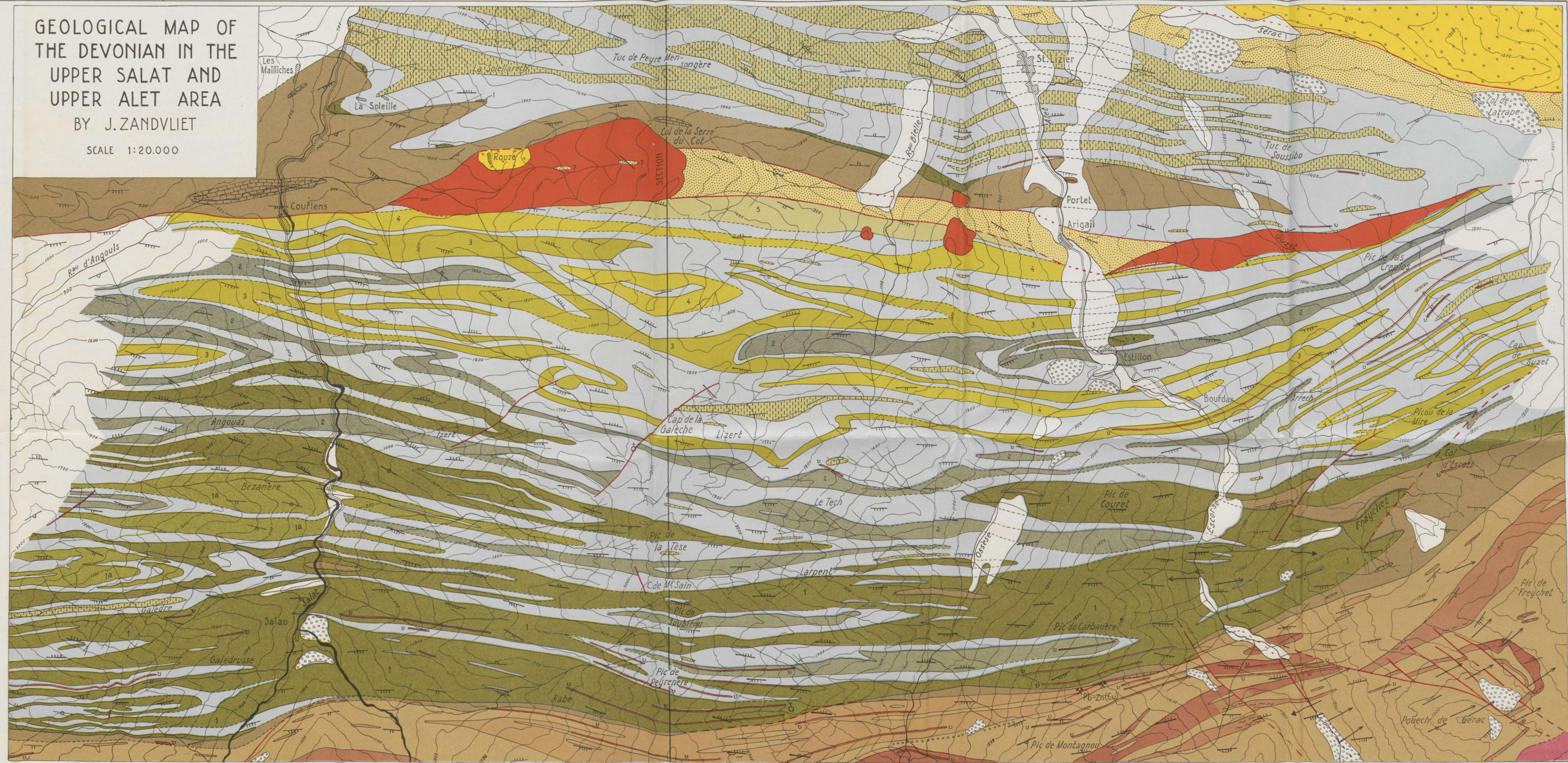
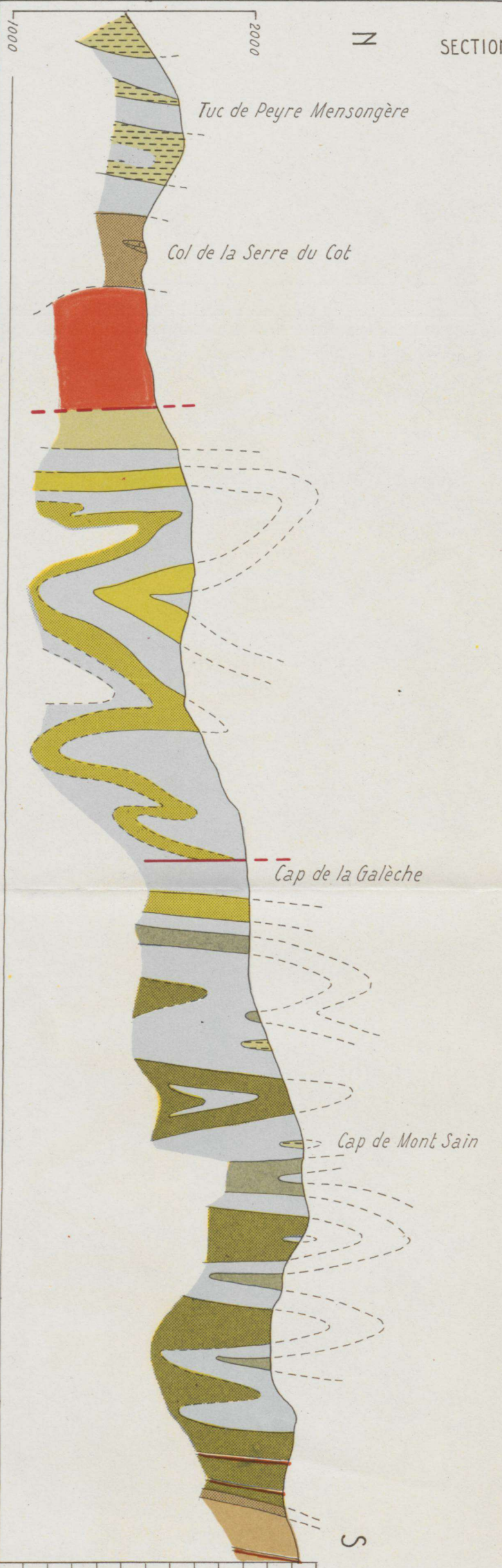
J.H. Allaart	A
G.J. van Alphen	Al
J.R. Boersma	B
J.C. Brindley	Br
H.L. Dussanavage	D
P.M. Guldennar	G
C. van der Heyde	H
J.F. Lapré	L
J. Op den Kamp	O
J. Prins	P
J.P. Snoop	S
A.J. Wissink	Wi
J. Zandvliet	Za



The differentiation of the metamorphic Cambro-Ordovician rocks east of the Spain-Andorra and the Spain-France frontier has been reserved for sheet 6

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GEOLOGICAL MAP OF THE DEVONIAN IN THE UPPER SALAT AND UPPER ALET AREA
 BY J. ZANDVLIET
 SCALE 1:20.000



<p>QUATERNARY</p> <ul style="list-style-type: none"> Alluvium Glacial deposits <p>MESOZOIC and TERTIARY</p> <ul style="list-style-type: none"> Limestones, shales etc. undifferentiated; JURASSIC and LOWER CRETACEOUS, with Alpine metamorphism: marmorisation and scapolitisation Ophite (gabbros and peridotites) LOWER CRETACEOUS intrusives 	<p>DEVONIAN</p> <ul style="list-style-type: none"> Variegated nodular limestones ("grotte"), alternating with variegated slates UPPER PART OF DEVONIAN Beds consisting of grey to dark-blue, compact or slaty limestones and limy slates; on the map marked with different colours and from 1 to 5 representing the order in deposition Undifferentiated limestone beds, lithological identical with those mentioned above Bluish-black slates, passing into greenish-grey slates towards the top of the lower part of Devonian LOWER PART OF DEVONIAN 	<p>SILURIAN</p> <ul style="list-style-type: none"> Black pyritic and carbonaceous shales, locally with black or grey limestone lenses Bluish-black slates, locally with an oligomitic conglomerate Grey to brown slaty limestones and limy slates <p>CAMBRO-ORDOVICIAN</p> <ul style="list-style-type: none"> White to light-brown, unstratified, coarse crystalline dolomites White massive or coarse crystalline marbles Banded quartzitic limestones ("barregiennes") <p>LATE CARB. INTRUSIVES</p> <ul style="list-style-type: none"> Biotite-granodiorite to quartz-diorite Porphyry dykes and sills 	<p>Strike and dip of cleavage</p> <ul style="list-style-type: none"> 30° - 49° 50° - 69° 70° - 89° 90° <p>Direction and plunge of lineation</p> <ul style="list-style-type: none"> 0° - 20° 21° - 40° 41° - 60° 61° - 90° 	<ul style="list-style-type: none"> Fossil locality Economic deposits Normal contact Fault Source Cu - Copper Pb - Galene Zn - Sphalerite
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