

GEOLOGIA E PETROGRAFIA DO CORPO MÁFICO/INTERMEDIÁRIO UMARI, NW DO DOMÍNIO RIO PIRANHAS-SERIDÓ

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Geologia Regional

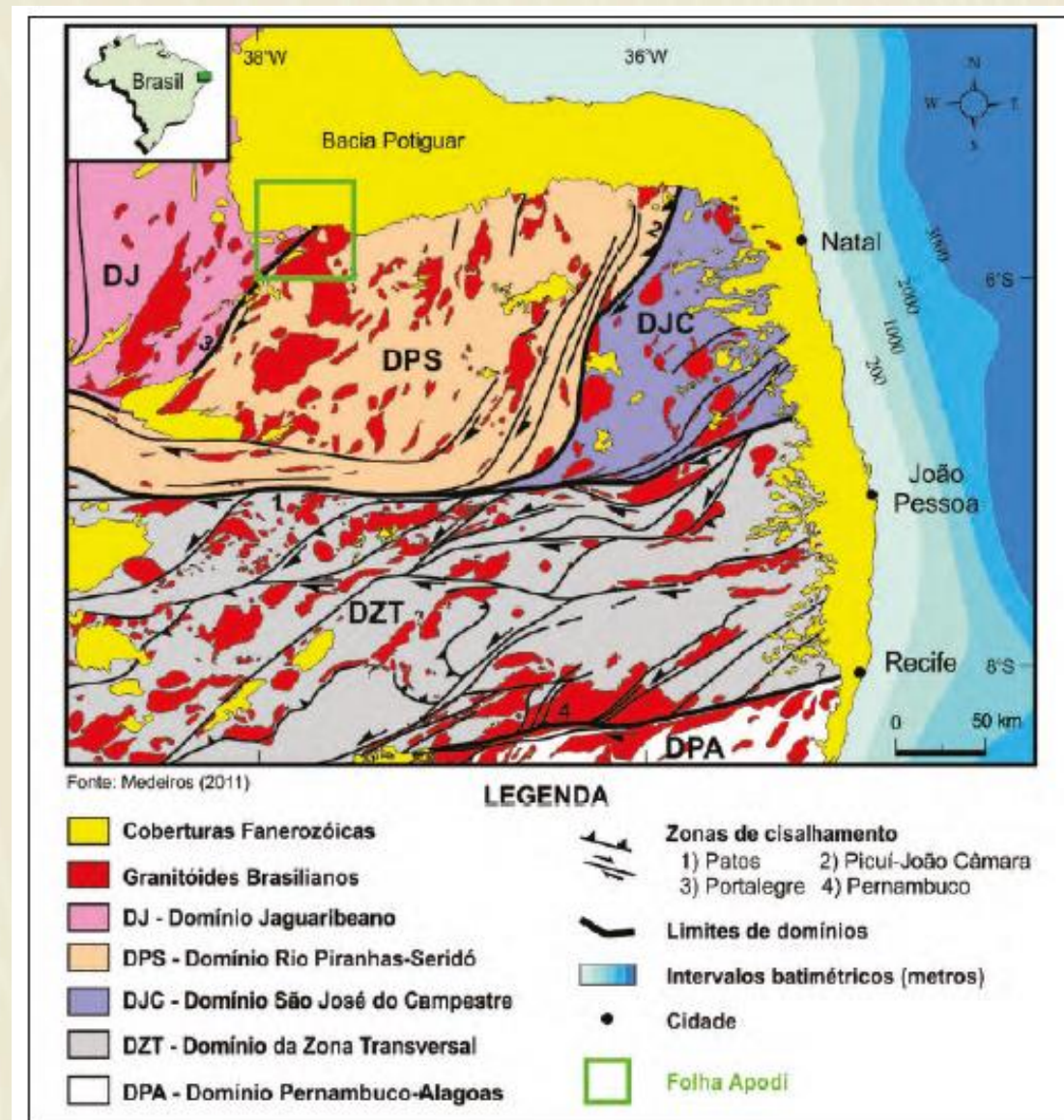


9º Simpósio do Cráton do Brasil
Rio de Janeiro - 2018



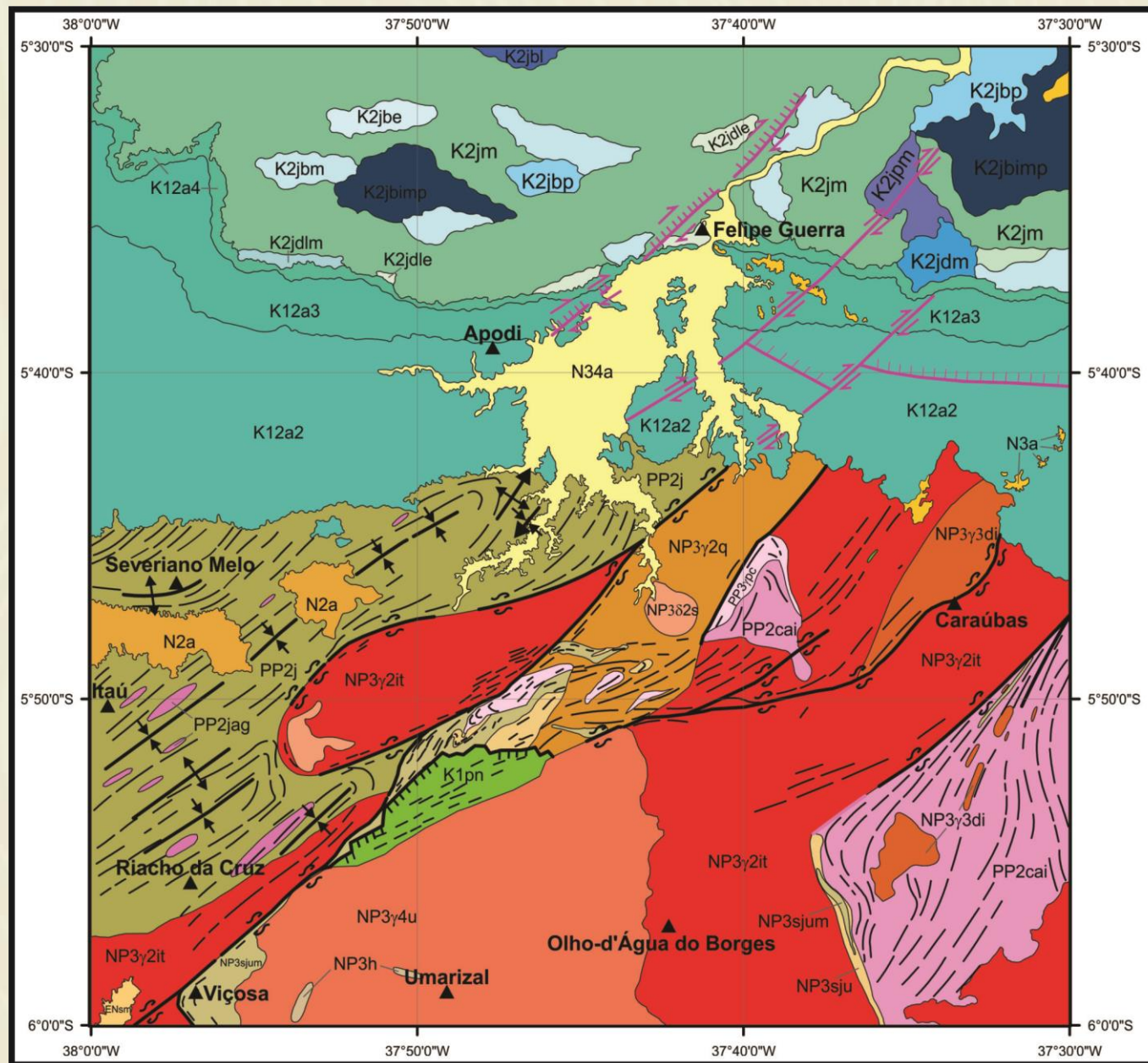
Domínio Rio Piranhas-Seridó

- Localizado na porção **setentrional** da Província Borborema.
- O Domínio Rio Piranhas-Seridó encontra-se a norte da **Zona de Cisalhamento Patos** entre as **Zonas de Cisalhamento e Picuí-João Câmara** e **Portalegre**.
- Constituído pelo **Complexo Caicó** (gnaisses migmatíticos), pelo **Grupo Seridó** (metassupracrustais) e pelos **Granitóides Brasilianos**.



Granitóide Quixaba

- O granitoide Quixaba ocorre como um único corpo alongado, com mais de **100 km²** e **orientação NNE**, intrusivo nos ortognaisses do Complexo Caicó e da Suíte Poço da Cruz, sendo recoberto a norte pelas rochas da Bacia Potiguar.
- Galindo (1993) define **dois fácies** para o Granitoide Quixaba a partir de suas características petrográficas. São eles os fácies **Quixaba** e **Umari**.



Granitóide Quixaba

Fácies Quixaba

- O fácies Quixaba é o predominante, correspondendo a cerca de **90%** do volume do plúton.
- É constituído por **rochas graníticas** (quartzo-monzodioritos e quartzo-monzonitos, com monzogranitos subordinados) de **textura grossa a muito grossa**.
- Apresenta tipicamente fenocristais euédricos de K-feldspato (≥ 2 cm), via de regra zonados.

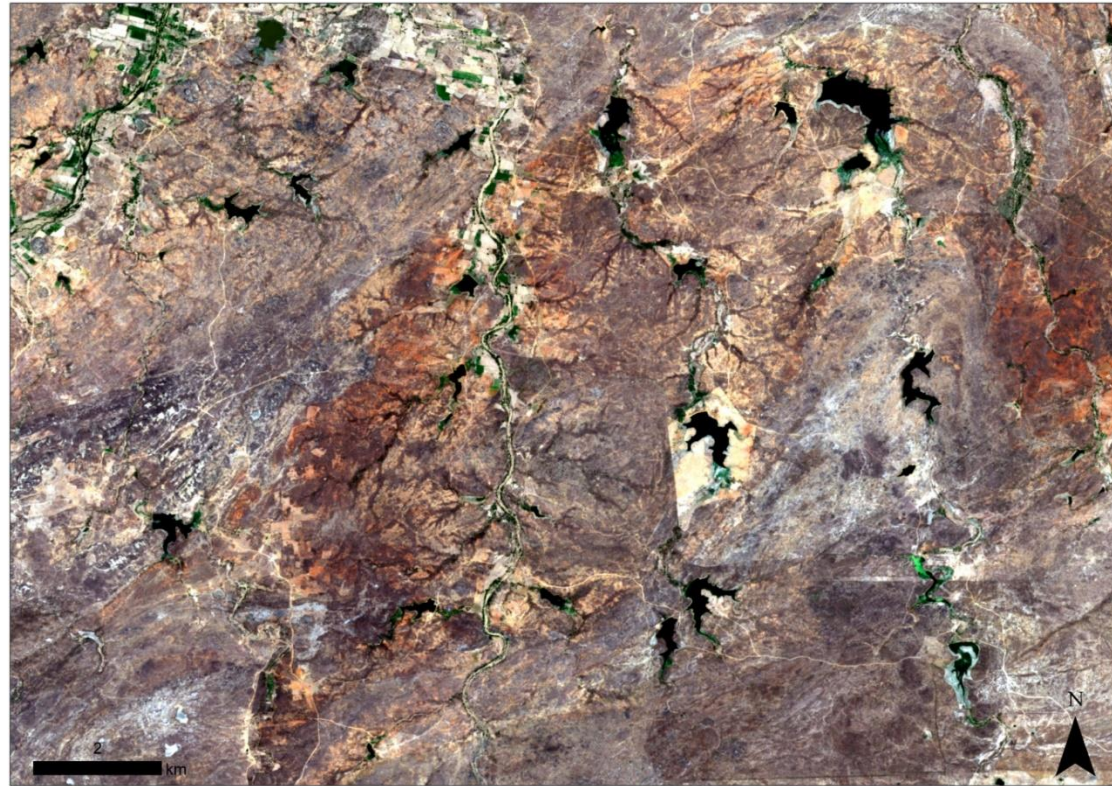
Fácies Umari

- Corresponde a $\approx 10\%$ do volume do plúton.
- O fácies Umari é composto por **rochas dioríticas**.
- São rochas máficas/intermediárias (máficos 35-60% modal) de textura **equigranular média**, por vezes francamente **porfirítica** com fenocristais de K-feldspato.

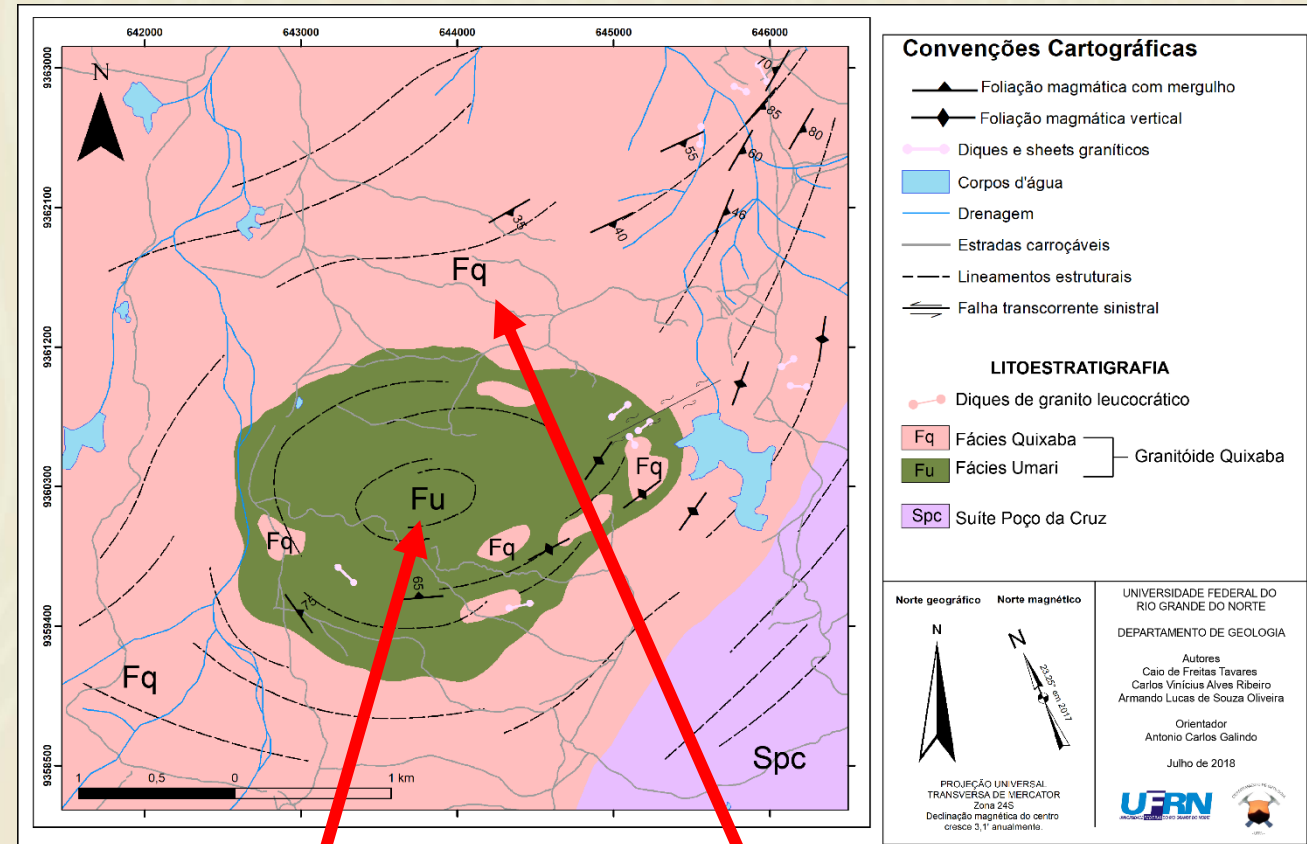
Corpo Máfico/Intermediário Umari



Mapeamento Geológico



Sentinel 2 – RGB 432



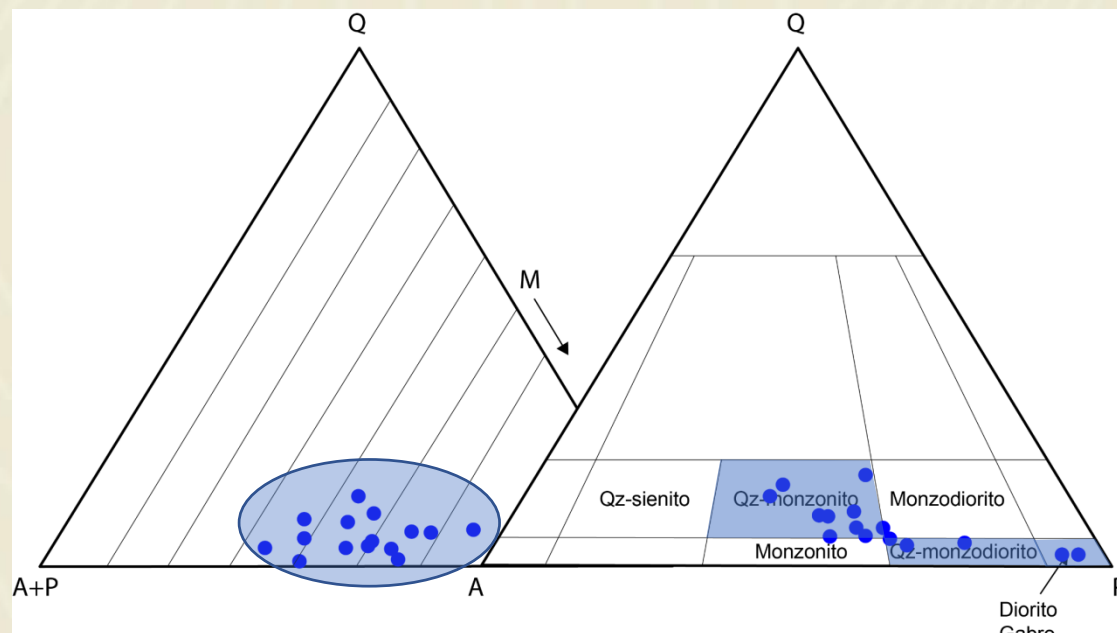
Aspectos de campo



Petrografia

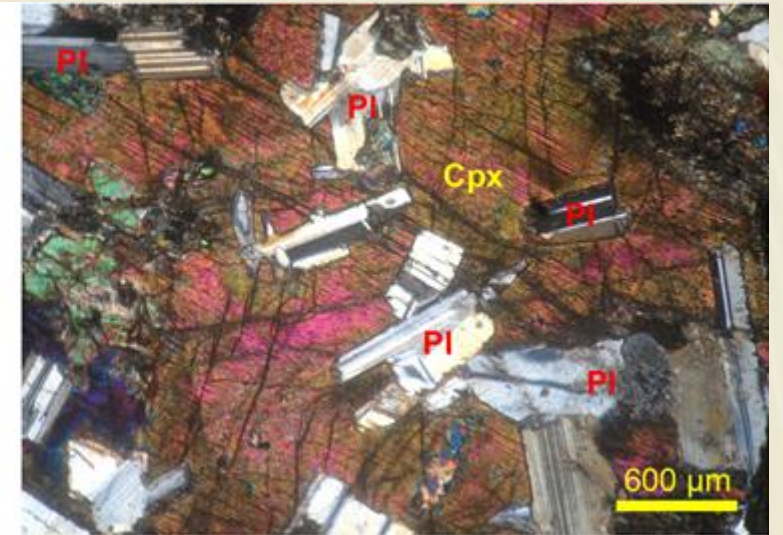
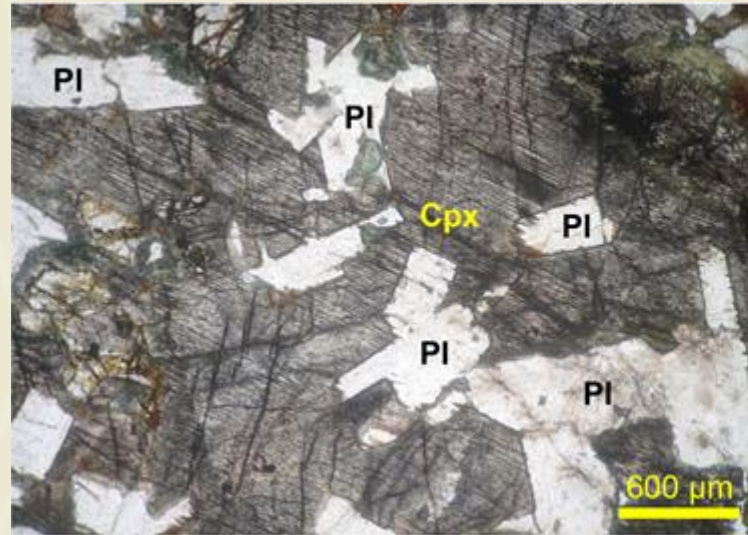
- 2 piroxênios
- Qz-monzonito, monzodiorito e diorito (Qz-mangeritos e Jotunitos)
- Máficos entre 30 e 60%
- Dois tipos texturais

Amostra	Q-1	QXU-1	QXU-2	Qx-06	Qx-40	Qx-40b	Qx-46	Qx-49	Qx-54a	Qx-54a2	Qx-60	Qx-72	U-325a	U-327
Quartzo	6,98	6,93	6,79	3,23	3,77	3,29	8,95	0,84	12,36	8,90	4,00	1,15	2,40	3,80
Plagioclásio	37,11	34,79	35,11	33,44	30,23	31,44	23,92	40,90	15,53	16,99	28,44	51,00	43,64	43,50
K-feldspato	30,14	29,71	23,36	20,98	19,95	15,79	13,76	2,01	25,33	31,12	14,79	4,00	20,42	12,00
Biotita	13,40	3,30	12,63	4,03	16,02	16,16	20,14	13,05	19,32	15,00	22,53	18,93	21,92	15,70
Anfibólio	12,37	3,30	8,42	17,14	14,02	8,08	16,12	23,10	17,29	18,00	7,27	13,95	3,80	0,20
Titanita	-	-	-	4,03	2,01	-	2,02	-	-	1,00	-	-	trç	trç
Allanita	-	-	-	trç	trç	trç	-	-	-	-	-	-	-	-
Opacos	-	-	-	trç	-	3,03	3,02	2,01	-	2,00	3,09	2,00	1,30	2,70
Cpx	-	16,48	8,42	16,13	1,00	12,12	6,04	18,08	10,17	3,00	10,52	5,98	3,41	14,50
Opx	-	5,49	5,26	1,01	10,01	7,07	3,02	-	-	-	7,55	2,00	3,11	7,60
Apatita	-	-	-	-	3,00	3,03	3,02	-	-	4,00	1,82	-	-	-
Soma	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00

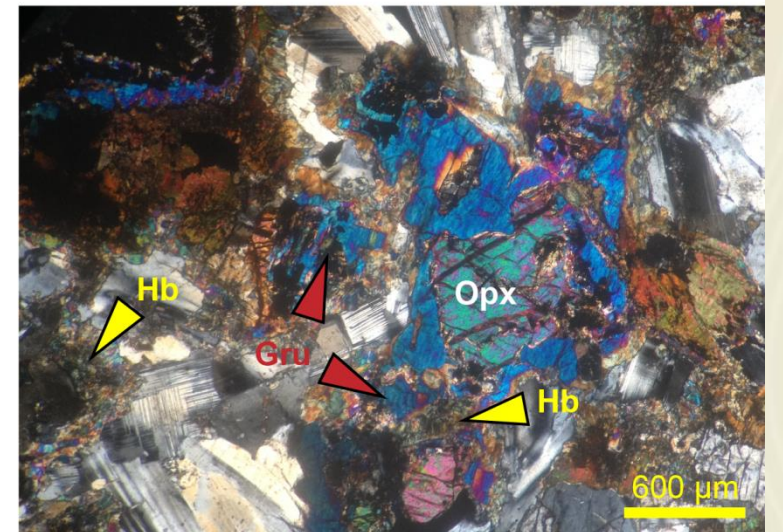
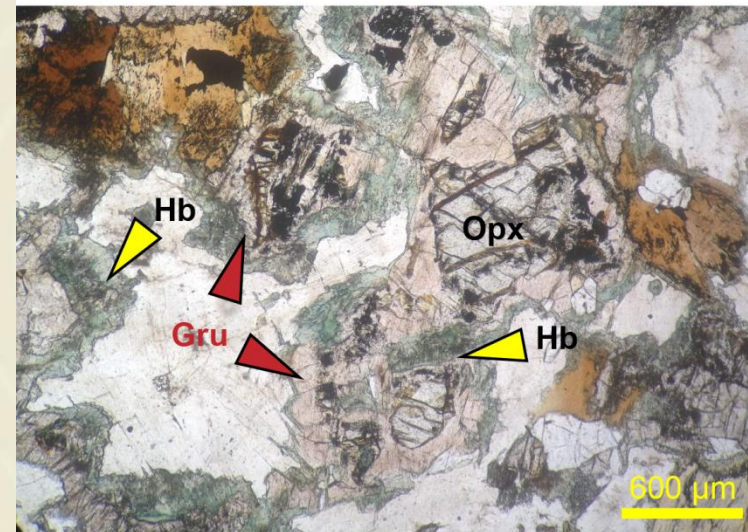


Dioritos

- Cpx com textura ofítica

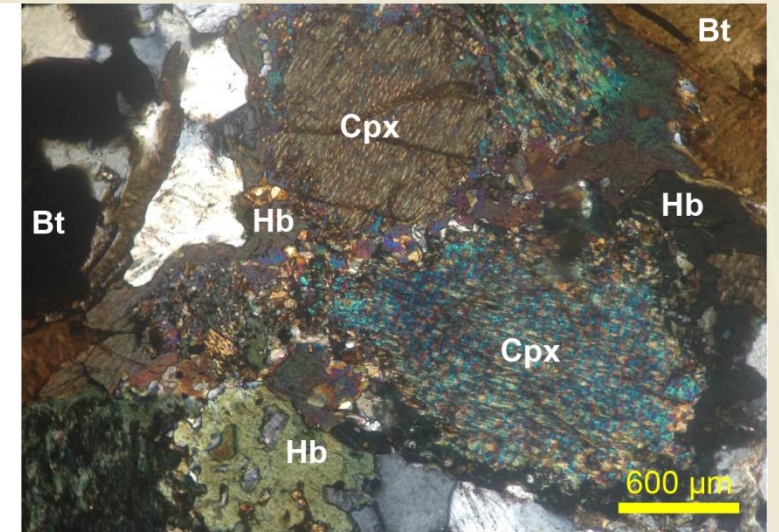
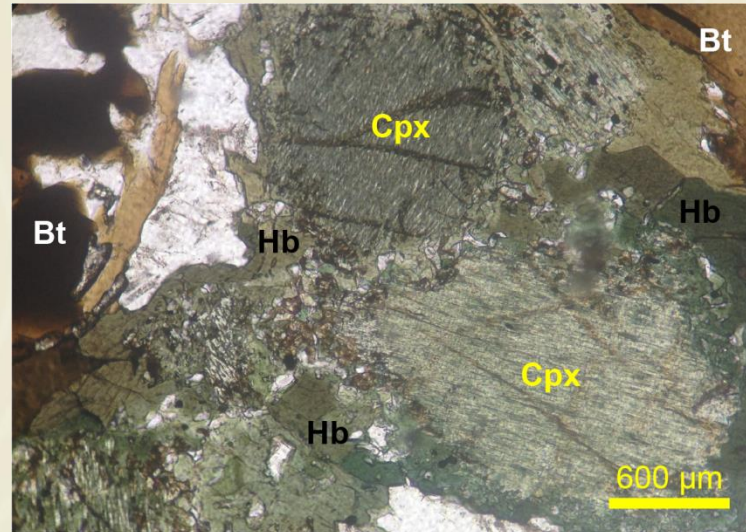


- $\text{Opx}_{(\text{Fe})} + \text{H}_2\text{O} = \text{Gru} + \text{Qz}$

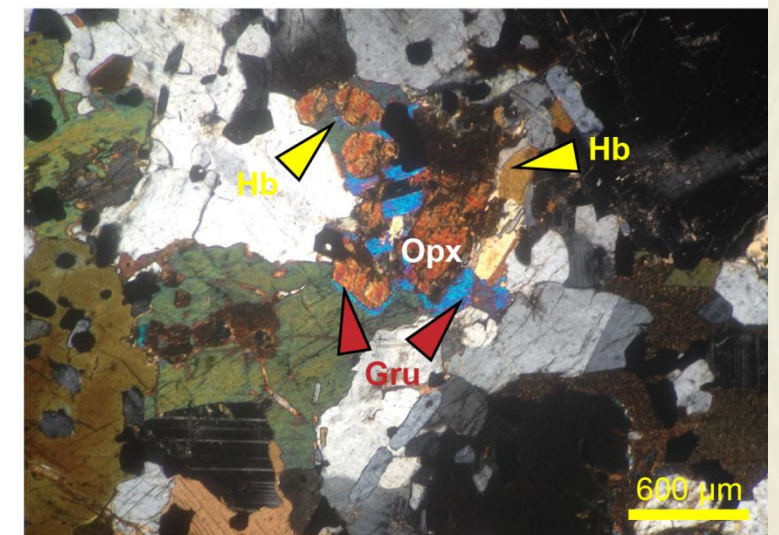
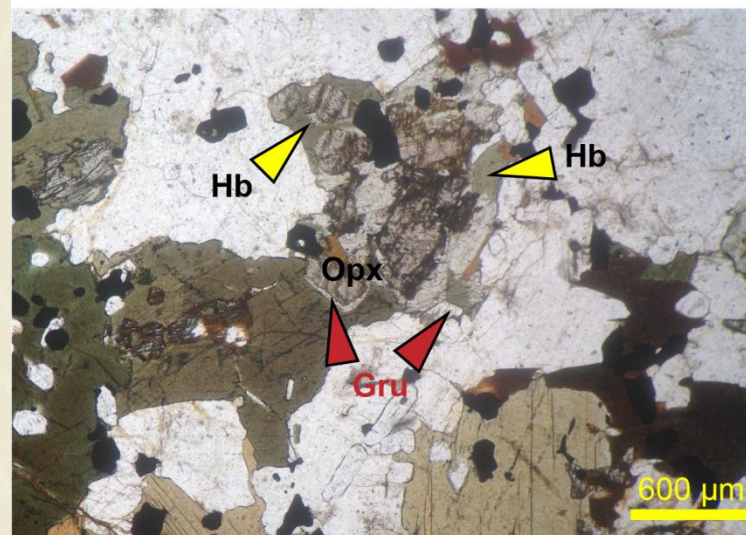


Qz-monzonitos e monzodioritos

- Desequilíbrio $\text{Cpx} \rightleftharpoons \text{Hb}$

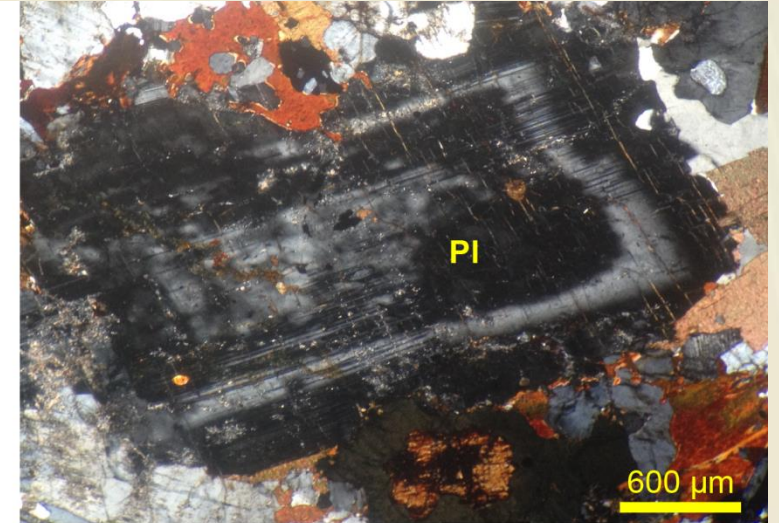
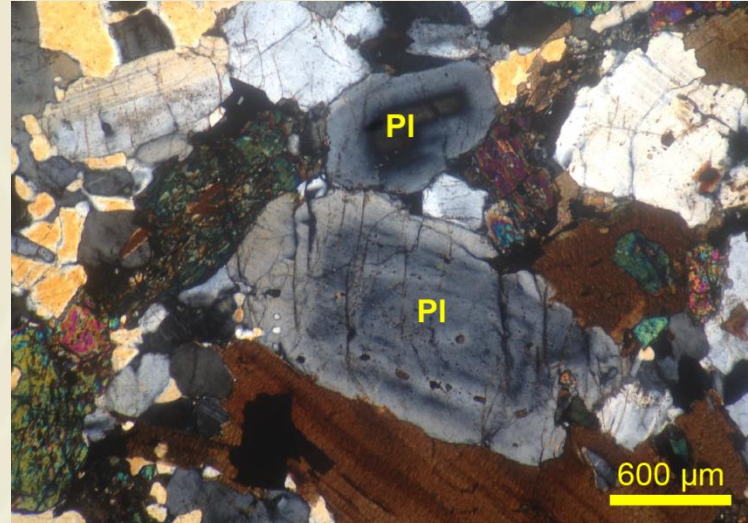


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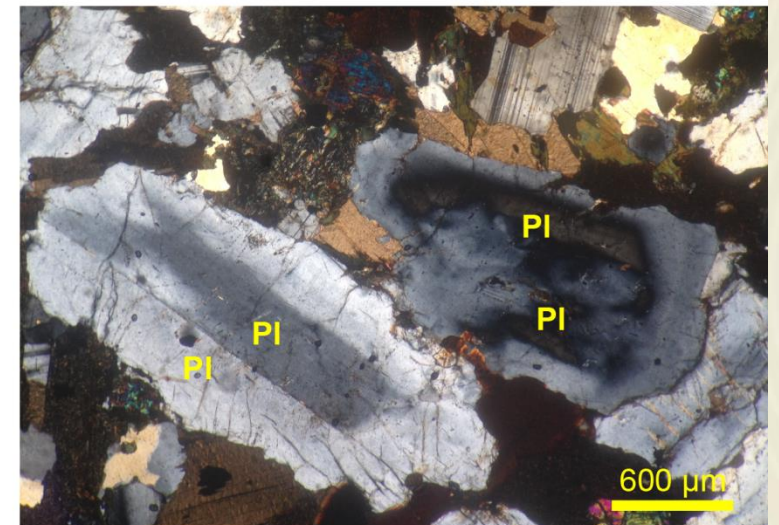
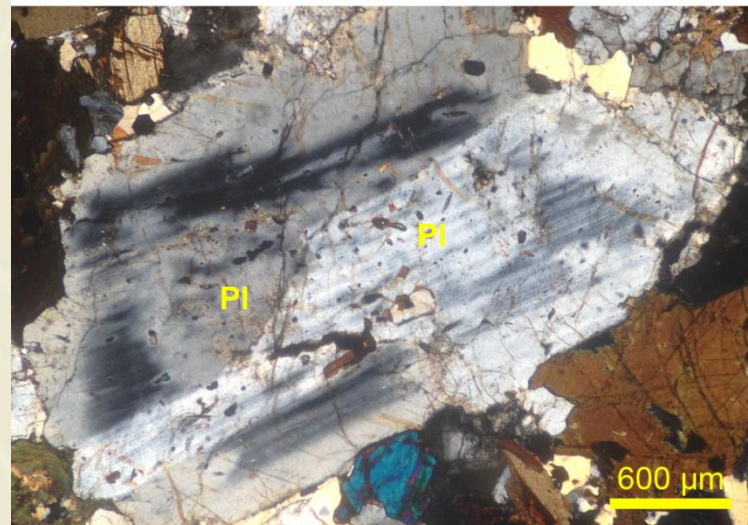


Qz-monzonitos e monzodioritos

- Zonação múltipla do plagioclásio

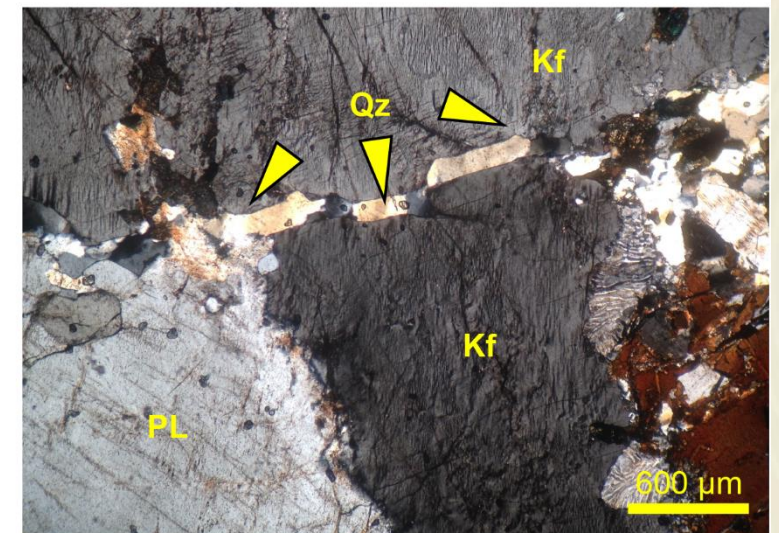
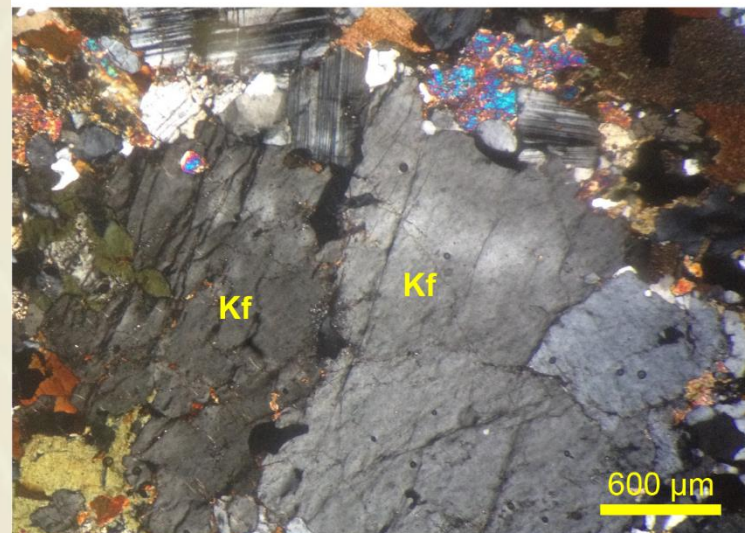
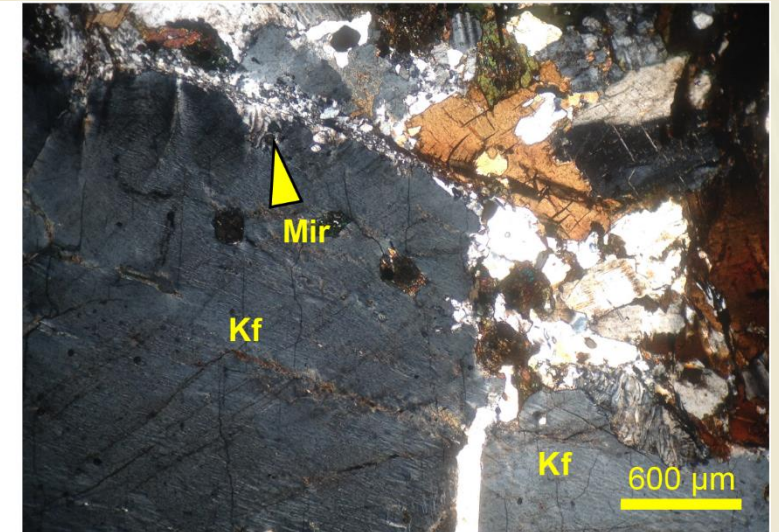
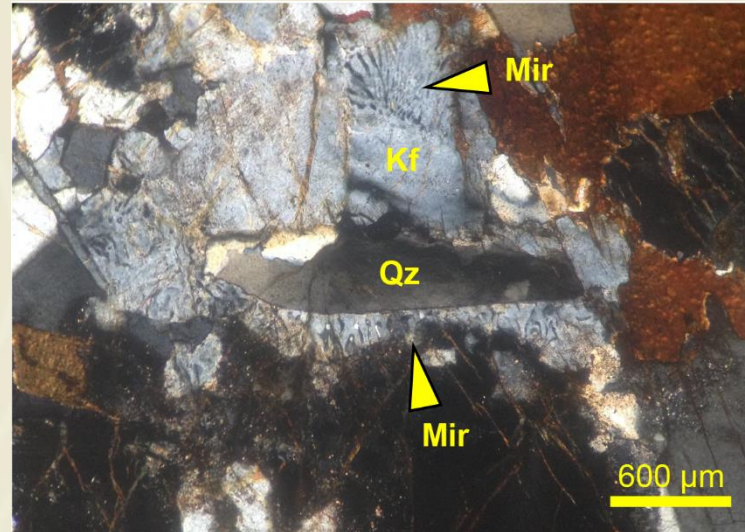


- e synneusis



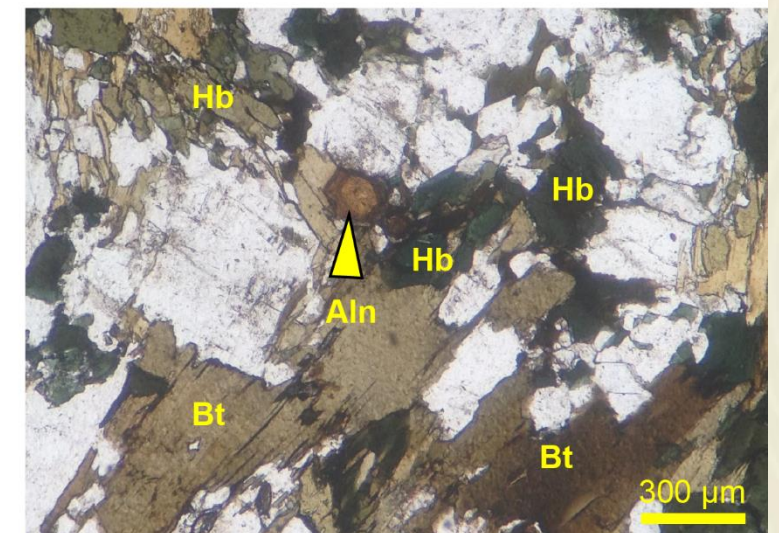
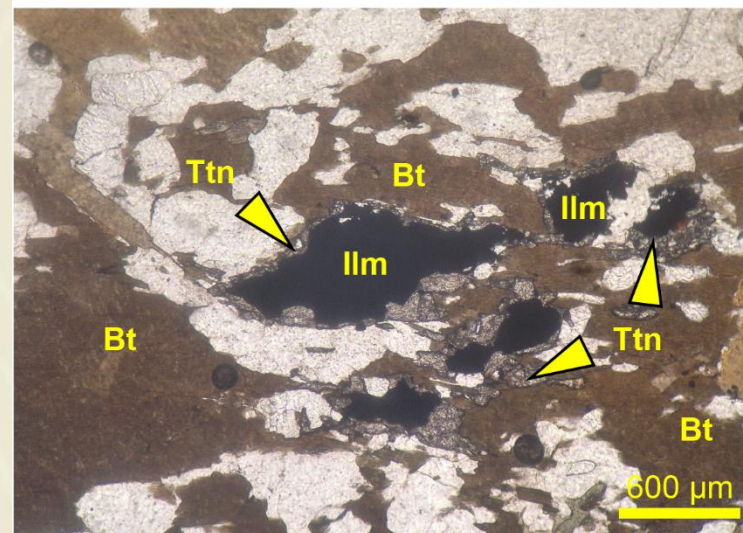
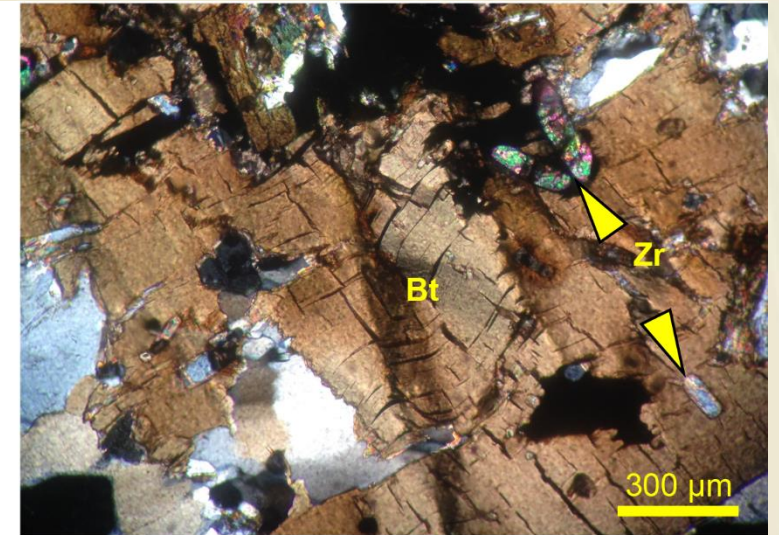
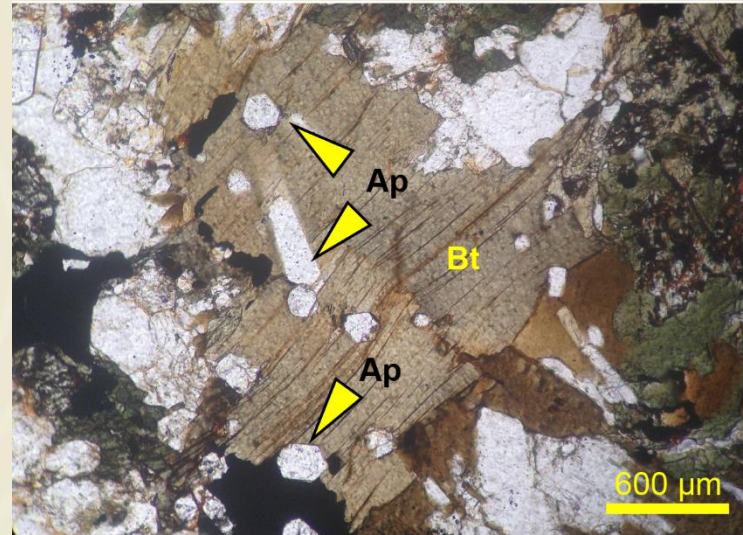
Qz-monzonitos e monzodioritos

- O K-feldspato apresenta diagnosticamente micropertitas e mirmequitas



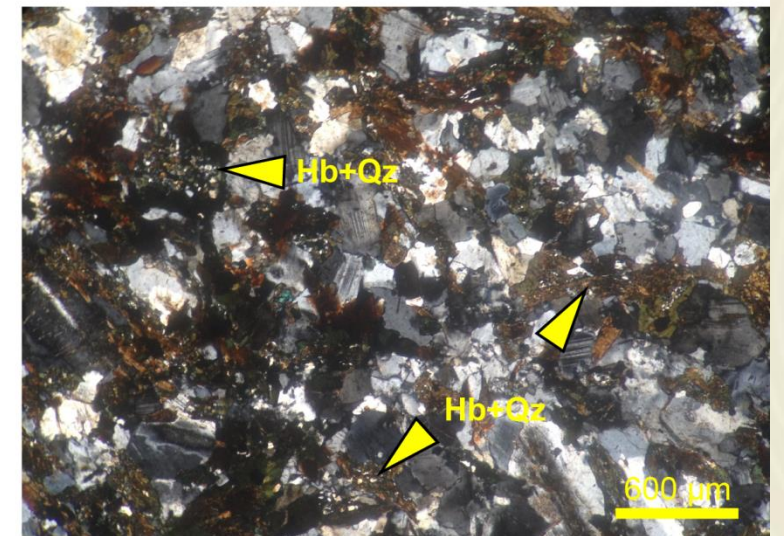
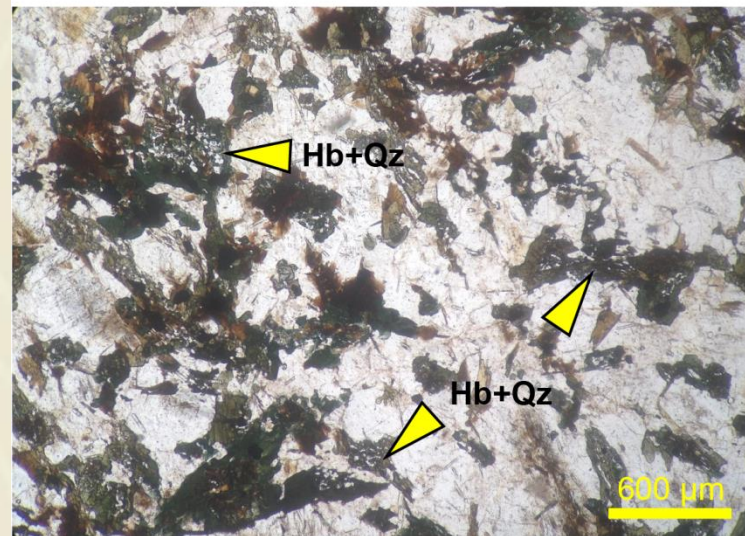
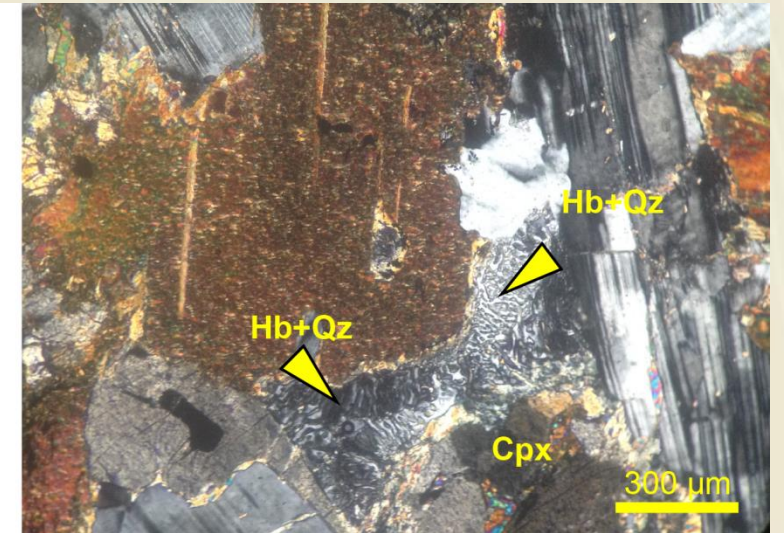
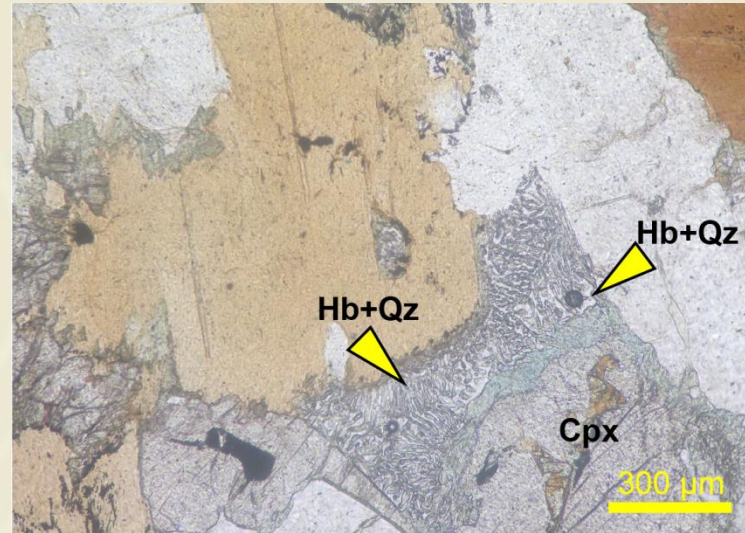
Qz-monzonitos e monzodioritos

- Cristais de apatita bem desenvolvidos (~0,5mm)
- Cristais de biotita dobrados (*kink bands*)
- Algumas amostras apresentam coronas de titanita em cristais anédricos de ilmenita
- Cristais de allanita



Qz-monzonitos e monzodioritos

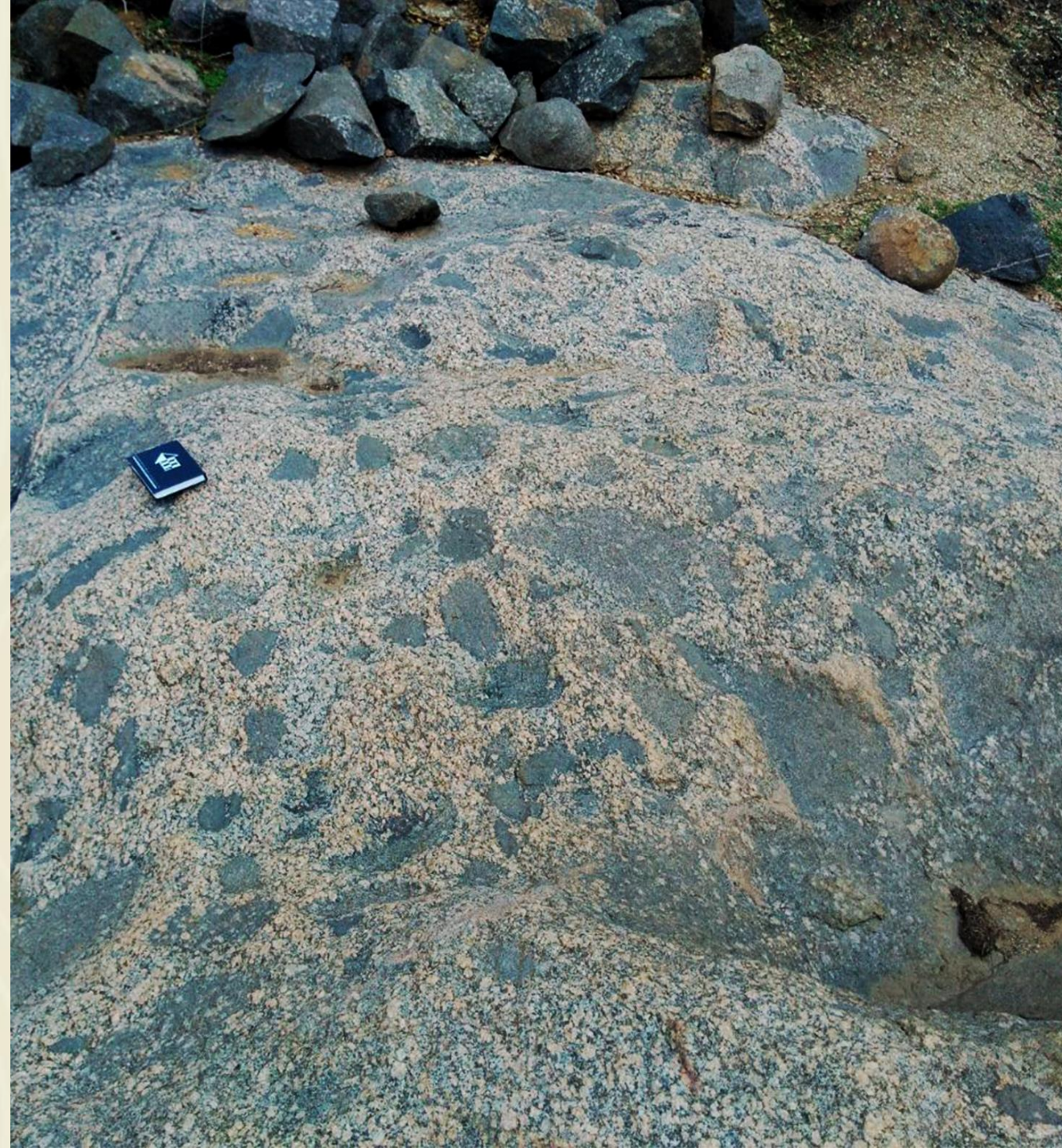
- Texturas de desequilíbrio (simplectitos de Hb+Qz)



Mistura de Magmas

Mistura de Magmas

- Mingling e mixing
- Estruturas
- Texturas (meso e microscópicas)



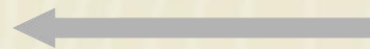
Mistura de Magmas

- Mingling e mixing
- Estruturas
- Texturas (meso e microscópicas)

MME's



Contraste de viscosidade



Temperatura

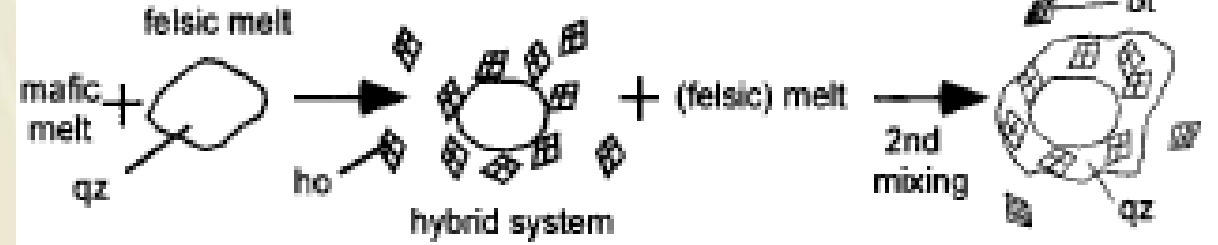
Mingling

Mixing

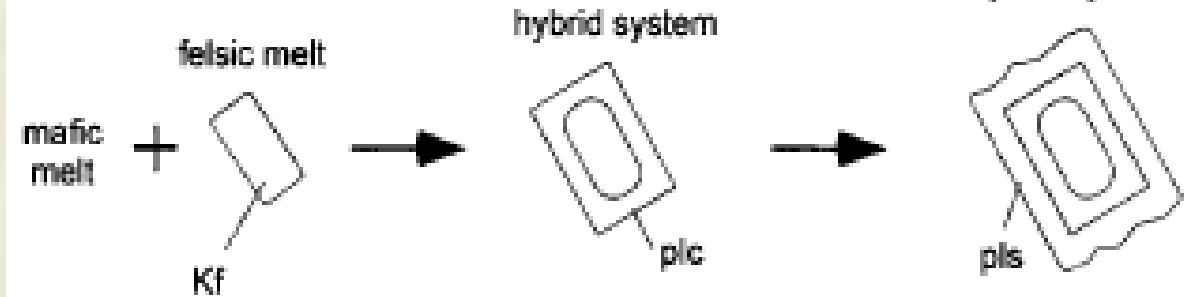
Mistura de Magmas



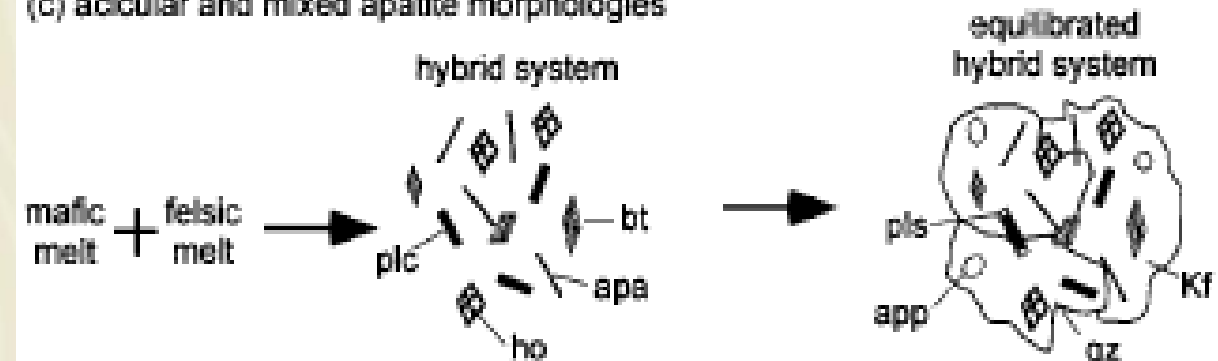
(a) quartz-hornblende ocellar texture



(b) rapakivi texture (plagioclase mantle on K-feldspar)



(c) acicular and mixed apatite morphologies

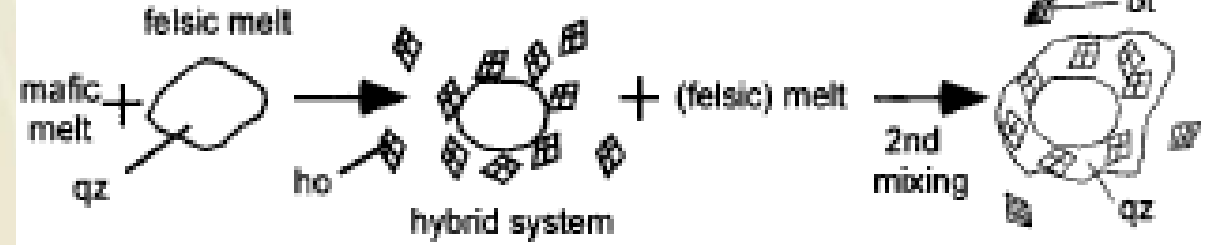


Hibbard, 1991

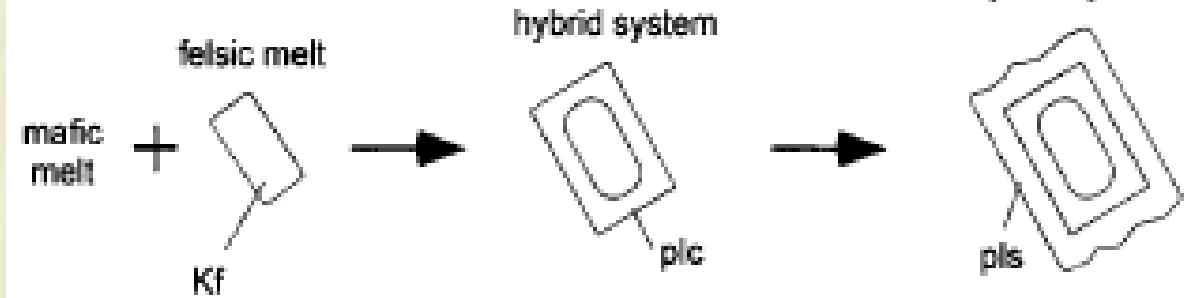
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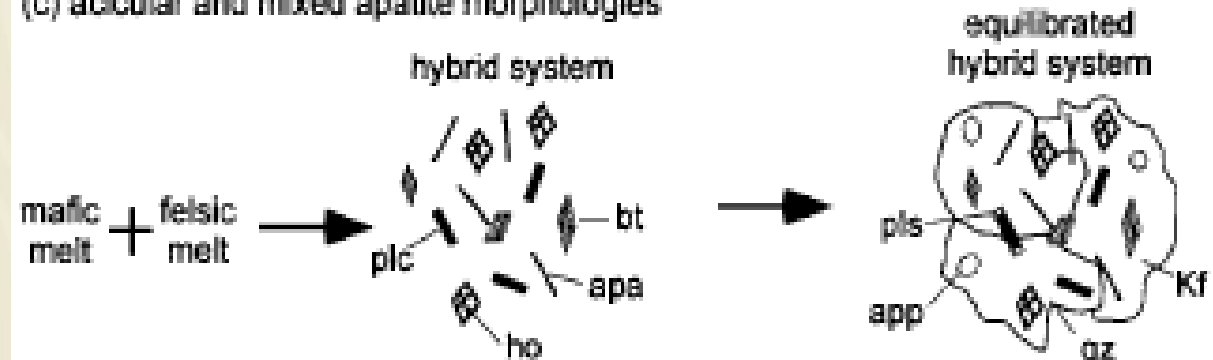
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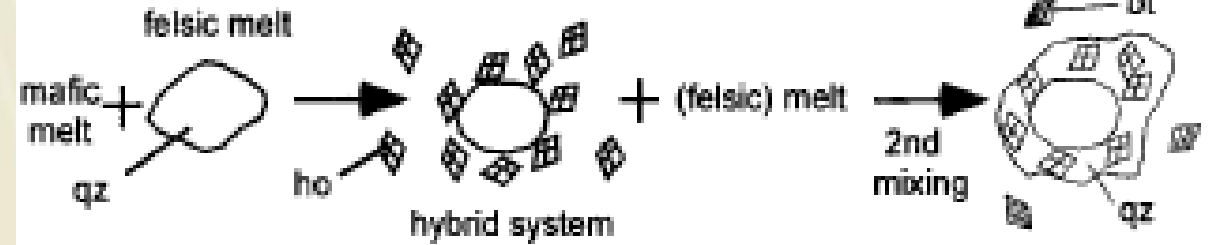


Hibbard, 1991

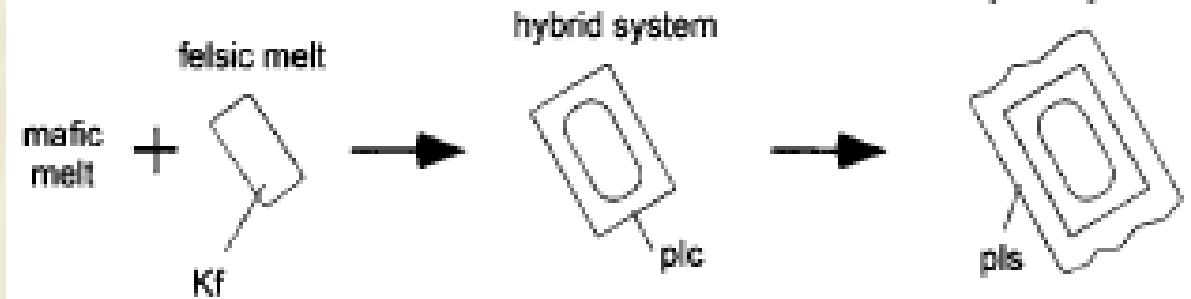
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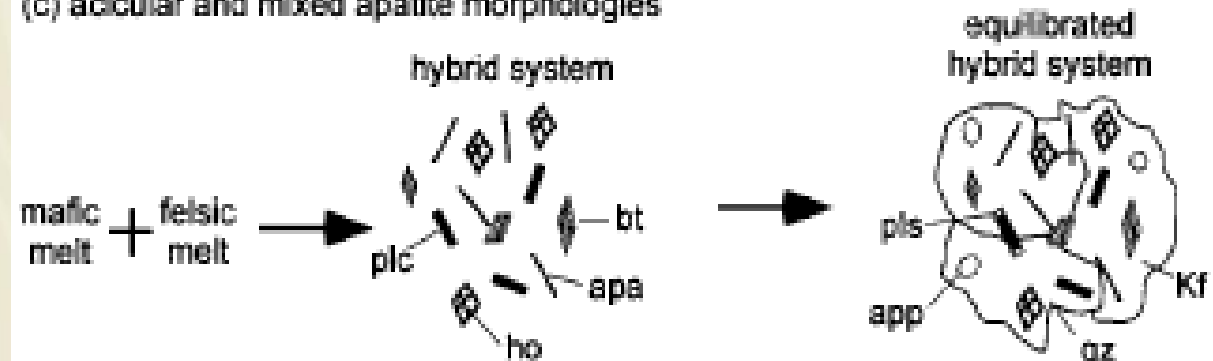
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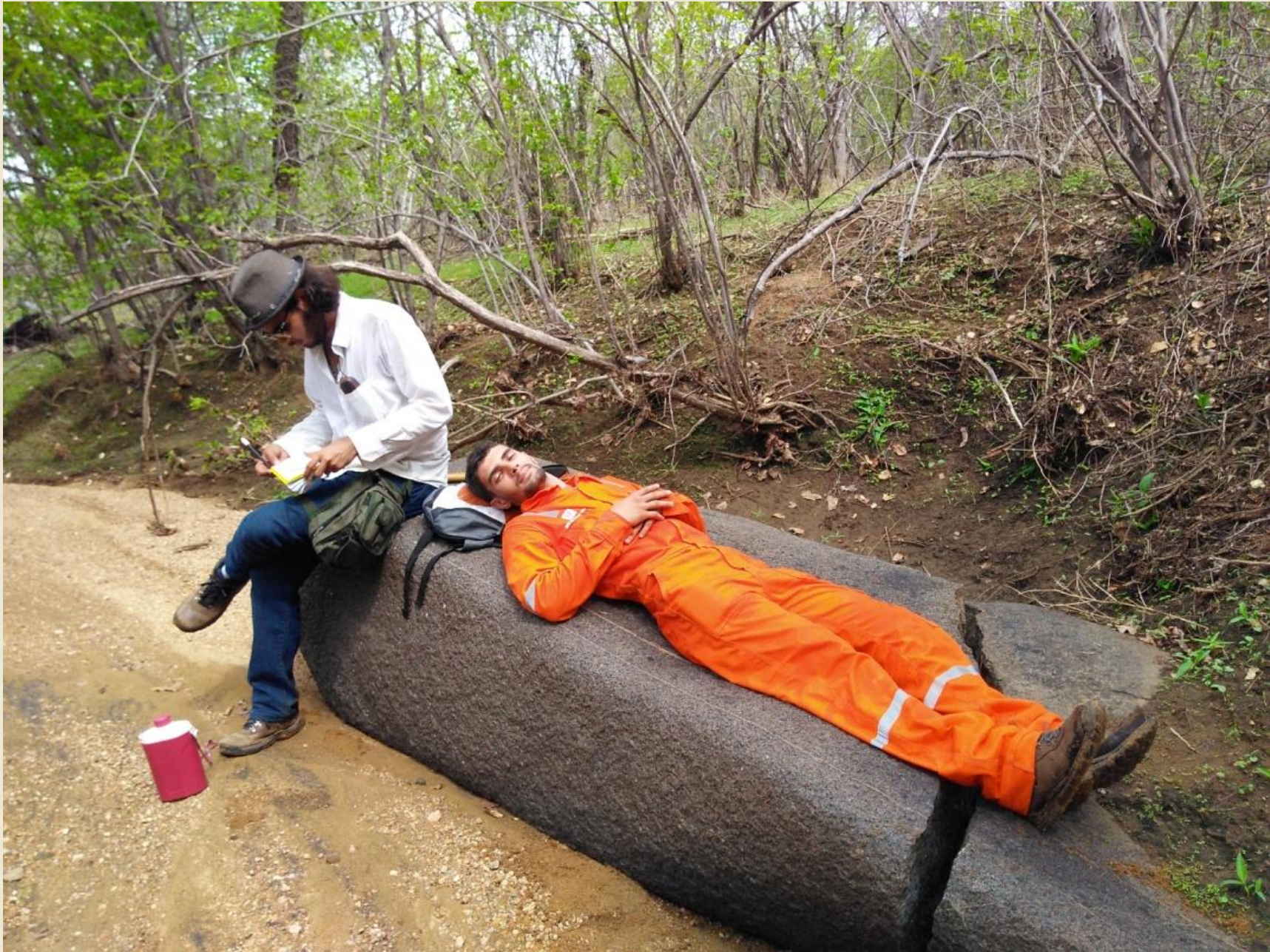
(c) acicular and mixed apatite morphologies



Hibbard, 1991

Considerações Finais

- O Granitoide Quixaba é de idade Ediacarana (570 – 600Ma). A partir das informações obtidas durante a realização deste trabalho, acreditamos em **idade similar** (dentro deste range) **para Corpo Máfico/Intermediário Umari**.
- A presença de estruturas observadas em campo (MME's) e a presença de texturas meso e microscópicas (Qz e Hb ocelar, rapakivi, *mixed apatites*, zonação oscilatória, synneusis entre outras) caracterizam o contexto de mistura de magmas e atestam para o hibridismo como processo dominante na evolução do Corpo Máfico Umari.
- A variação composicional das rochas de Umari (dioritos, monzodioritos, monzonitos e Qz-monzonitos), reflete a mistura (bem observada em campo) entre os magmas monzonítico de Quixaba e diorítico de Umari.
- Trabalhos futuros serão focados na caracterização litoquímica do corpo de Umari, para definir sua filiação magmática e as condições de cristalização (P, T e fO_2) relativas a evolução, cristalização e alojamento do magma.



**MUITO
OBRIGADO**

