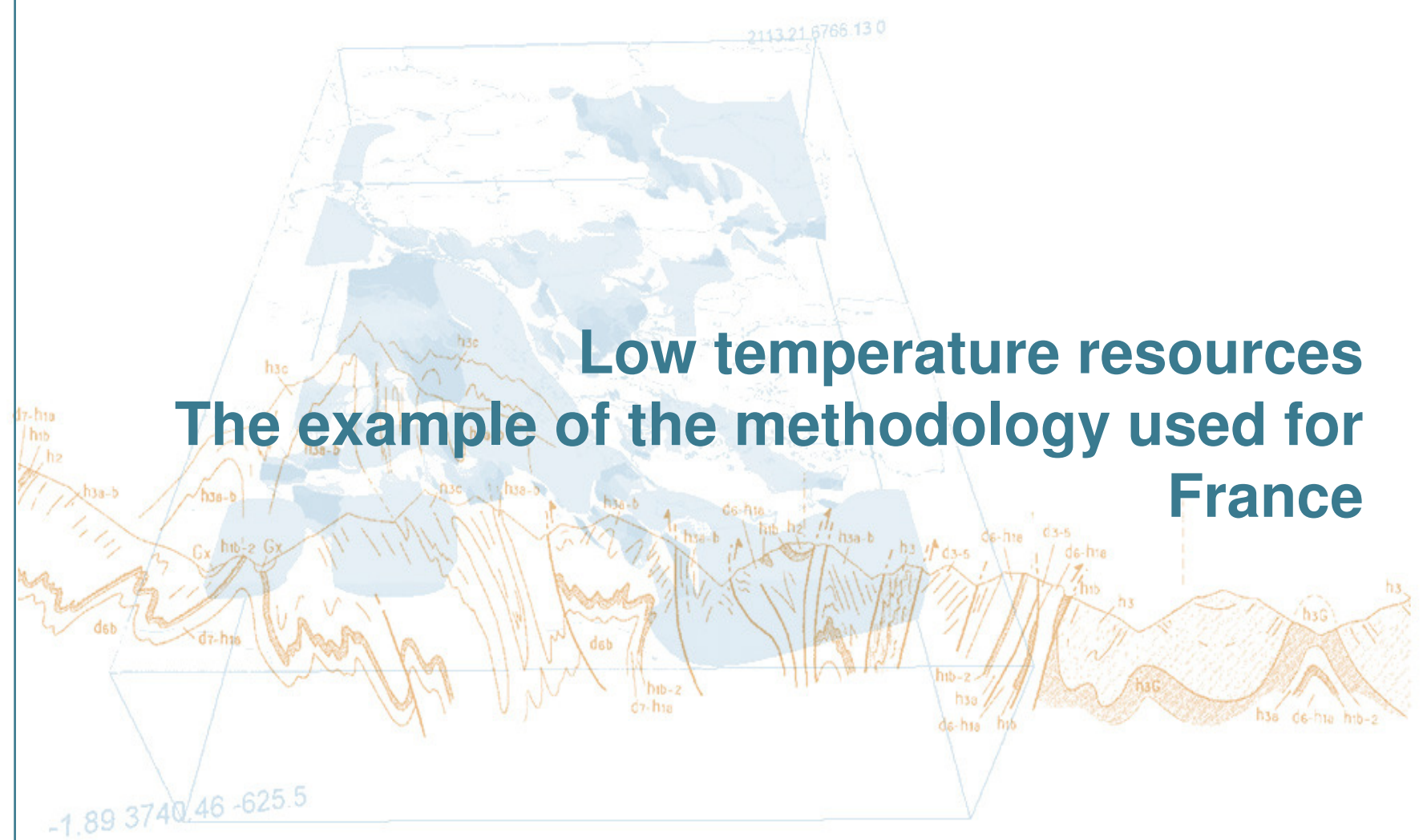
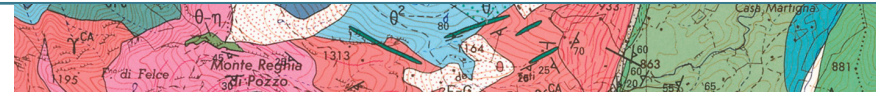




GIA-IGA Workshop 5-6 Mai 2009 - Madrid Future Geothermal potential



Low temperature resources The example of the methodology used for France

Principle :

> **Treatment of two sectors :**

- Heat pumps
- District heating

> **Identify technical and economical factors :**

- Barriers and constraints
- Opportunities

> **Deduce an annual growth rate on the period**

- 2008-2020
- Extrapolation to 2030

Heat pumps : barriers and opportunities

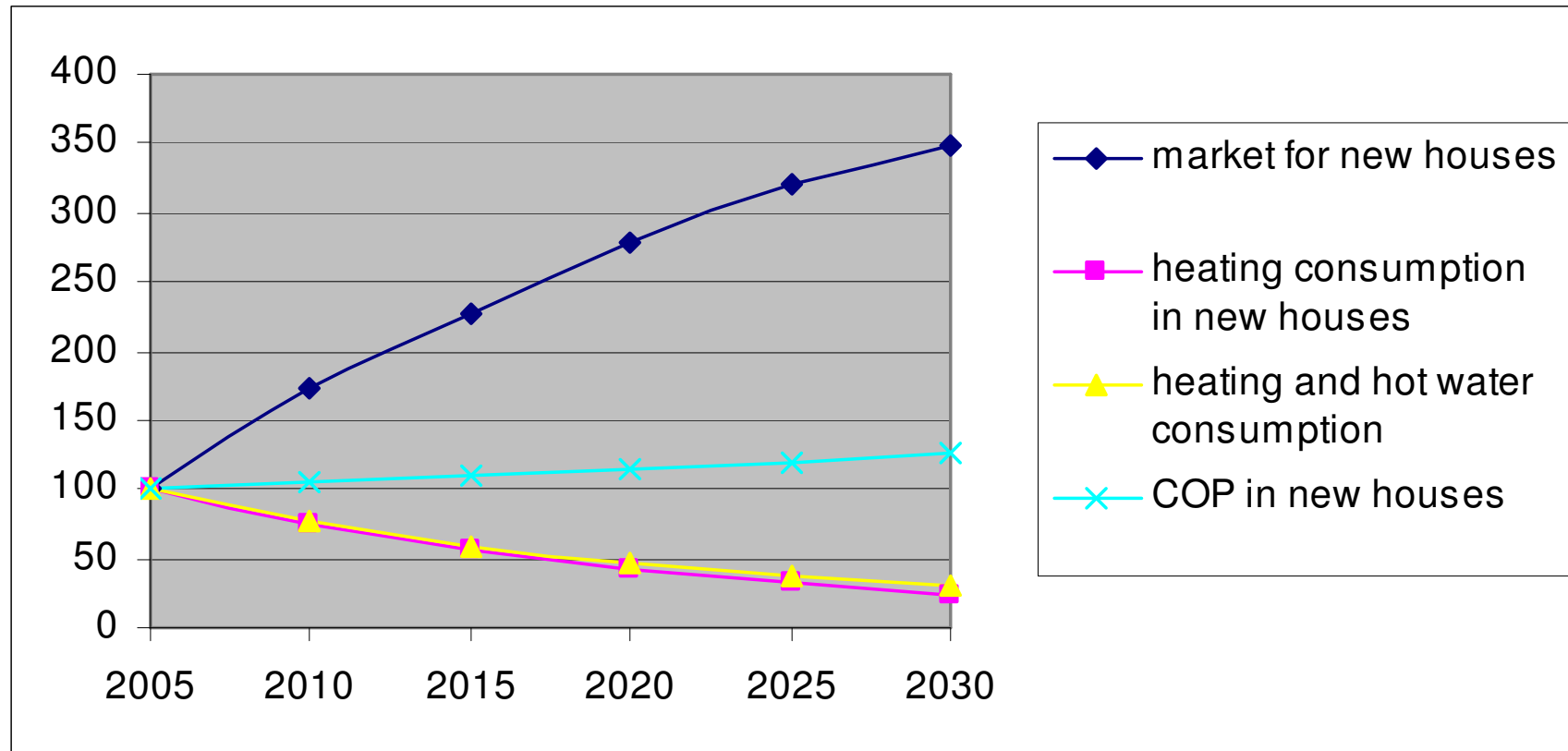
> **Market issues :**

- Information
- RES policy : information campaign, subsidies
- Decrease of new building energy consumption
- Competition with other RES after 2020

> **Technology :**

- Penetration of renovation market
- COP evolution
- Development of Heat pumps for hot water

Assessment of the evolution of the different factors (base 100 in 2005) : example of new houses



Evolution of the heat pumps installed (toe/y)

	2005	2010	2015	2020	2025	2030
RE from HP in new houses	37 342	101 937	177 133	252 740	325 240	391 914
RE from HP in renovation	2 658	41 680	130 384	263 734	445 290	666 646
RE from HP in tertiary building	50 000	70 000	150 000	250 000	350 000	450 000
Total	90 000	213 618	457 517	766 474	1 120 530	1 508 560
annual growth on the period		19%	16%	11%	8%	6%

District heating : barriers and opportunities

> **Market issues :**

- Availability of district heating
- Possibility of extension of existing DH
- Better use of existing wells

> **Supply chain :**

- Lack of skills

> **Geological resource :**

- Limitation of Dogger (Paris Basin) Resource to 500 ktoe/y
- New resources to be exploited in other region

Evolution of geothermal District heating (ktoe/y)

