



Trans-border movements in Northern Greece: seeking for spatial interactions



THE MULTIFACETED ECONOMIC AND POLITICAL GEOGRAPHIES OF INTERNAL AND EXTERNAL EU BORDERS

The 2010 European Conference of the Association for Borderland Studies

Department of Spatial Planning and Development, Aristoteleion University of Thessaloniki

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Borders and mobility

- Borders constitute interchangeably both barriers and opportunities for border regions, in particular in the European periphery, such as the border zone between Greece and its neighbouring countries.
- Crucial issues which make the study in these border areas of special importance
 - Problems of uneven development
 - Differences in the institutional context
 - Differences in the spatial structure
 - Special processes of transitional character.

Borders and mobility

- Traditionally, poor transport infrastructure constituted one of the major problems in the border regions and an important barrier for their economic development.
 - In the last decade a drastic improvement of transport infrastructure took place in the Northern Greek -essentially **border**-zone, especially as concerns road infrastructure:
 - Construction of the Egnatia motorway important parts of which started to function in 2004 (by the completion of the Kastania bypass) and put into full function in June 2009 with the completion of the entire 670 km route *.
 - Construction of some important vertical axis which connect this zone with the northern neighboring countries and the European transport corridors.
- * except of a 300m bridge in Epirus region, nearby the town of Metsovo which will be very shortly delivered to traffic.

Borders and mobility

- This drastic improvement of the road infrastructure
 - raised the traditional remoteness and bad accessibility of this zone, long being one of the most structural characteristics of the spatial infrastructure in Greece (Epiros, for example, due to its geomorphology was one of the most typical remote areas in Europe)
 - affected considerably the trans-border connectivity, even if such improvements did not take place in other parts of the border zone, as it shortened considerably the time distances between the border countries and regions.
- In European spatial development policy the “culture of mobility” as it has been call by Richardson and Jensen (2000), is one of the basic spatial discourses clearly framed by the European Spatial Development Perspective with its main target towards ‘transcending spatial distances across Europe”

Borders and mobility in European transport and spatial planning discourse

- ✓ “With growing economic and social integration, internal borders are increasingly losing their separating character and more intensive relationships and inter-dependencies are emerging between cities and regions of the Member States. This implies that **effects of regional, national or Community projects in one country can have a considerable impact on the spatial structure of other Member States [...]**” (ESDP, pp.7).
- ✓ “In general terms, the Community contribution to the implementation of the trans-European transport network **should be concentrated on the cross-border sections and on bottlenecks**” (EC-DG TREN, Trans-European networks: Towards an integrated approach, 2007, pp5).

Borders and mobility in European transport and spatial planning discourse

- ✓ “Cross-border transport is an important theme of cooperation between border regions, as it is assumed to link functional urban areas (FUAs) and even potential urban strategic horizons (PUSH). As the integration process of enlargement regions intensifies there is great potential to develop relationships, bonds and ties over national borders in the form of Transnational Potential Urban Strategic Horizons” (INTERREG, 2007: “Cross-Border Cooperation – Cross-Thematic Study of INTERREG and ESPON Activities”, pp. 32)
- ✓ Improved territorial knowledge is required to better understand cross-border territories and to design appropriate and adapted policies. There is an expressed need for indicators relating to accessibility, mobility, equipments and services, demography [*and so on...*] (EC, DG-REGIO, "Territorial cohesion: unleashing the territorial potential", Background Document to the Conference on Cohesion Policy and Territorial Development: Make Use of the Territorial Potential, 10-11 December 2009, Kiruna, Sweden)

Borders, mobility and planning

- Traditional transport infrastructure assessment methodologies rarely include the full range of impacts for the transportation system. One of these benefits is the contribution to cross-border spatial integration, critical for the European integration process.
- There are recent research results that show significant and important impacts, especially in terms of **network efficiency** for both sides of a border. [From this point of view] a remote border area at a national scale may turn out to be a central place in an integrated common market and space.
- Thus, these specific spatial entities as the border zones challenge for the Europeanization of Spatial Planning through Territorial Cooperation.

- ELENA LÓPEZ, ANDRÉS MONZÓN, EMILIO ORTEGA AND SANTIAGO MANCEBO QUINTANA (2009): *Assessment of Cross-Border Spillover Effects of National Transport Infrastructure Plans: An Accessibility Approach*, Transport Reviews, Vol. 29, No. 4, 515–536, July 2009.

- LEFTERIS TOPALOGLOU AND GEORGE PETRAKOS (2006): *Tracing the New Economic Geography of the Borders in Europe*, 46th Congress of the European Regional Science Association, Volos 23-27 August 2006

- STEFANIE DU' HR, DOMINIC STEAD & WIL ZONNEVELD (2007): *The Europeanization of Spatial Planning through Territorial Cooperation*, Planning Practice and Research, 22:3, 291 – 307.

- JOB VAN EXEL *et al* (2002): *EU involvement in TEN Development: Network Effects and European Added Value*, Transport Policy 9, pp. 299-311.

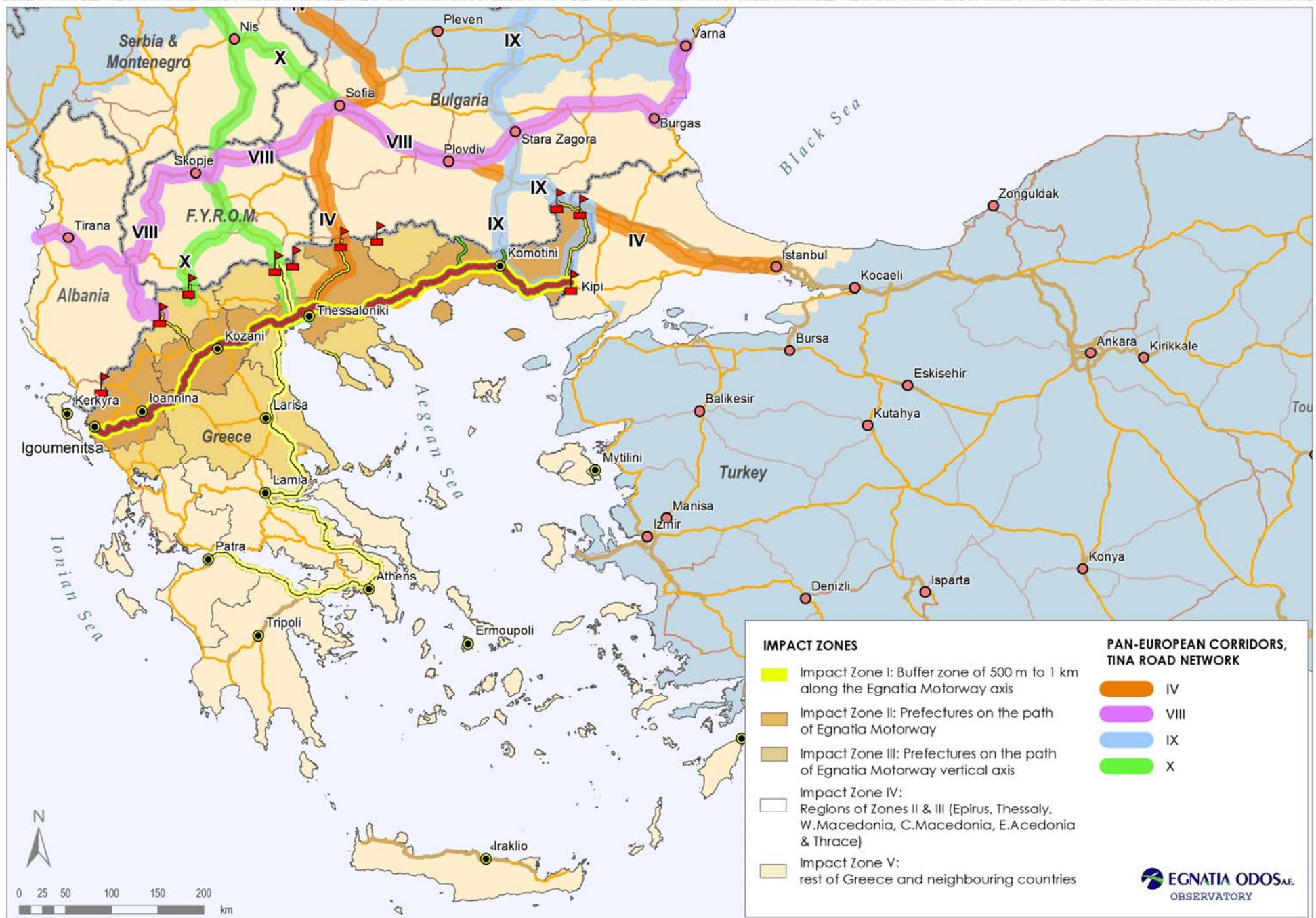
- OLE B. JENSEN and TIM RICHARDSON (2001): *Nested Visions: New Rationalities of Space in European Spatial Planning*, Regional Studies, Vol. 35.8, pp. 703–717, 2001.

- ATHANASIOS PAPADASKALOPOULOS *et al* (2005): *The spatial impact of EU Pan-European transport axes: City clusters formation in the Balkan area and developmental perspectives*, Transport Policy, 12, pp. 488–499

The main source of the study

- This paper attempts to analyze the spatial dimensions of the results of an origin-destination study which was held by the Egnatia Odos A.E. in the 10 border stations of Northern Greece under the supervision of the Egnatia motorway Observatory.
"Research study for transport indicators", Contract No: 3652, 2009, EGNATIA ODOS S.A. - Contractors: NAMA A.E. - ERASMOS EPE - S. EFSTATHIADIS & ASSOCIATES
- The investigation took place in spring-summer 2009, upon the completion of the Egnatia motorway and while large parts of its vertical axis were also open to traffic.
- Therefore, the research results provide an overview of the impacts of road infrastructure improvement at an initial stage.
- The analysis focuses on 2 spatial levels:
 - National (border countries)
 - Regional (nuts 3 border regions and cities)

Road motorway infrastructure and border stations



Aggregate data: Total traffic and traffic composition

- Total average of daily traffic (spring 2009):
 - **22.467 vehicles**
 - **50.514 passengers**
- 2005 – 2009:
 - **90% increase of daily traffic**
- Traffic composition / week days
 - **74,2% passenger vehicles**
 - **20,1% trucks of all types**
 - **5,7% buses and taxis** (i.e. public transport)
- Traffic composition / weekends
 - **77,5% passenger vehicles**
 - **18,3% trucks of all types**
 - **4,2% buses and taxis**

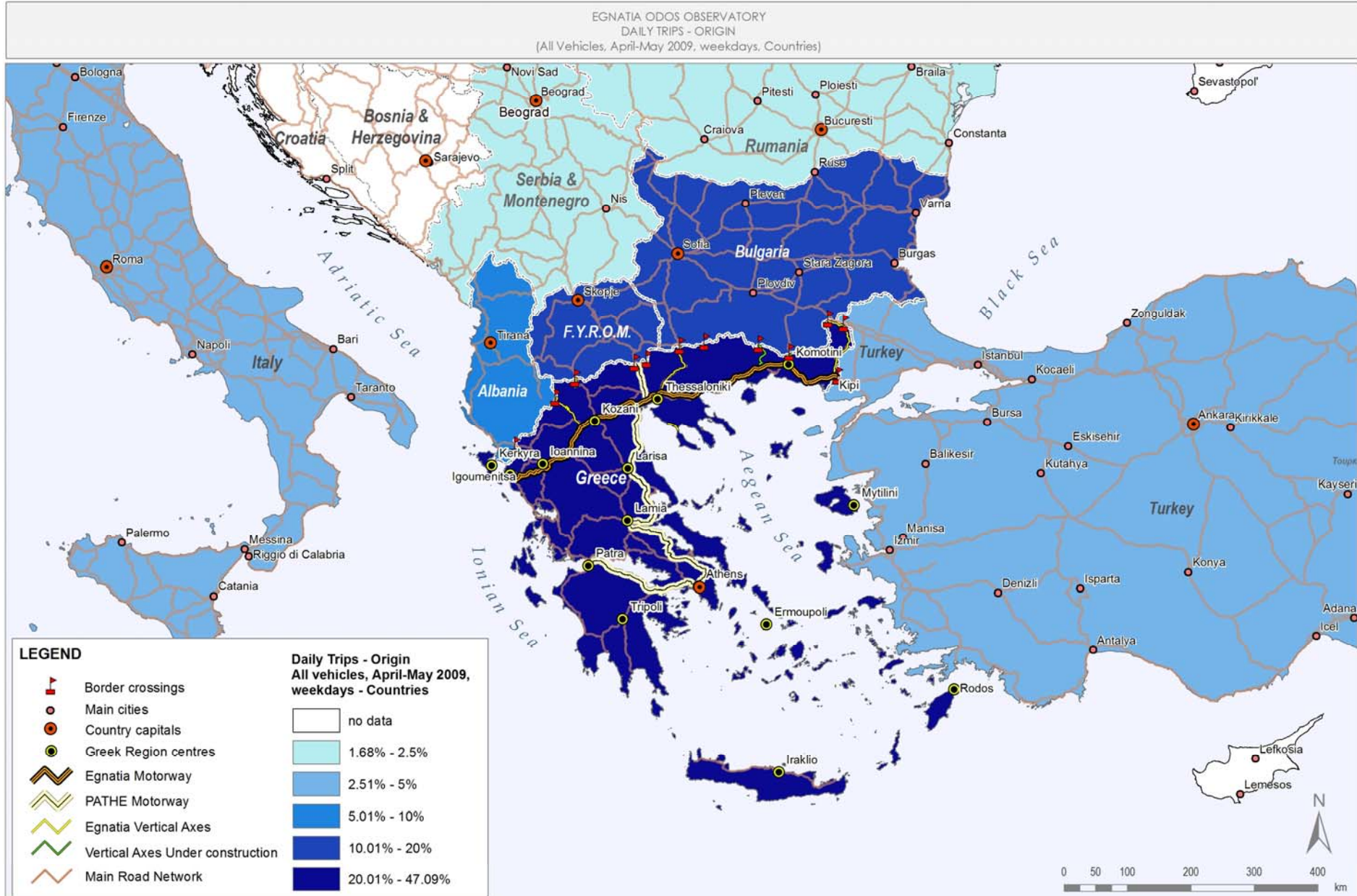
Aggregate data: Trip frequency & trip purpose

- More than one third (35,4%) travel daily or very often (1-4 times a week)
 - **6,2% daily trips**
 - **29,2% very frequent trips(1-4/week)**
- Almost one third (32,6%) are frequent trips (1-3 times a month)
- 42,7% travel for work reasons
 - **12,1% from/to work**
 - **30,6% for work reasons**
- 45% travel for tourism/leisure reasons
- 12,2% for other reasons (including shopping)
- During the weekends, of course, tourism/ leisure is more than 50%, however, the reason “from/to work” is almost 5%.

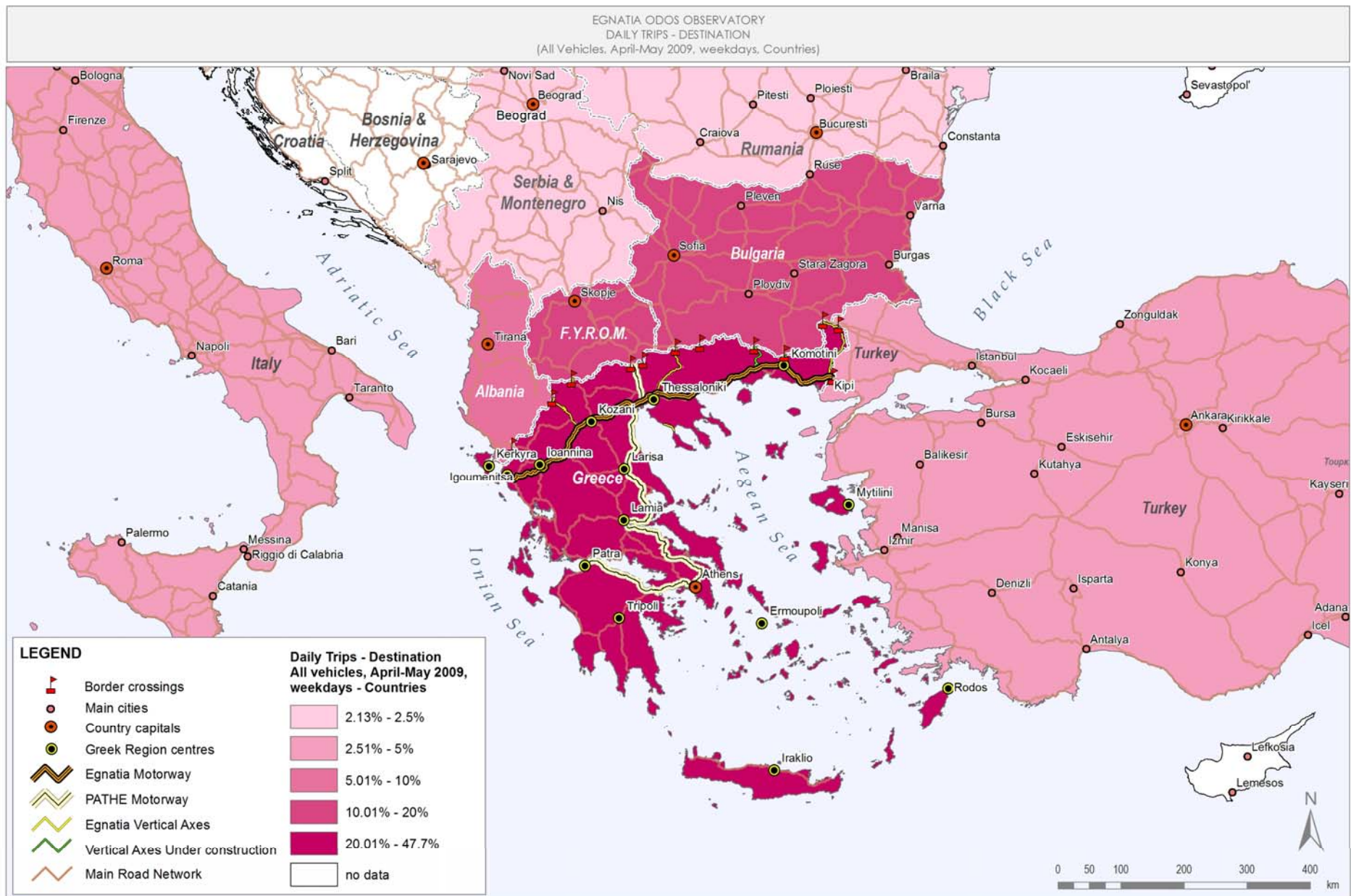
Origin-Destination: countries

- Greece occupies a little less than 50% of the average daily movements
 - O: w/days 47,1% with this percentage to be slightly increased in the w/ends to 47,7%
 - D: w/days 47,7% which decreases to 46,4% in the w/ends
- Northern border countries (Bulgaria and FYROM)
 - O: w/days 33,1% (18,6+14,5) with this percentage to be slightly increased in the w/ends to 33,7% (19,2+14,5)
 - D: w/days 32,5% which increases to 35,9% in the w/ends
- West border (Albania)
 - O: w/days 8,8% to 7,4% in the w/ends
 - D: w/days 8,4% which decreases to 7,8% in the w/ends
- East border (Turkey)
 - O: w/days only 3,3% which increases to 4,6% in the w/ends
 - D: w/days 3,9% which increases to 5,7% in the w/ends
- Other (non-border) countries (Europe)
 - O: w/days 7,6% to 6,7% in the w/ends
 - D: w/days 7,2% which decreases to 4,1% in the w/ends
- Data that indicate:
 - a high mobility (and stronger relations) from-towards the northern border
 - very low mobility (very weak relations) from-towards the eastern border

Origin - countries



Destination-countries



Trip frequency – border countries final destination

- Daily trips

- **FYROM** : **10%**
- **Albania** : **9%**
- **Bulgaria** : **6%**
- **Greece** : **5%**
- **Turkey** : **3%**

(note 3% are also the daily trips to Serbia+Montenegro)

- Very often trips, 1-4/week

- **FYROM** : **49%**
- **Bulgaria** : **31%**
- **Albania** : **28%**
- **Greece** : **25%**
- **Turkey** : **6%**

(note: 28% are also the trips 1-4/week to Serbia & Montenegro)

Trip purpose – border countries final destination

- From/to work – w/days
 - **Greece** : **16,8%**
 - **Bulgaria** : **14,8%**
 - **Albania** : **7%**
 - **FYROM** : **3,3%**
 - **Turkey** : **2,4%**

- Tourism/leisure – all days
 - **Turkey** : **75%**
 - **FYROM** : **49,8%**
 - **Bulgaria** : **49,3%**
 - **Greece** : **46,6%**
 - **Albania** : **41,4%**

Structure of the border regions movements

The top ten pairs of the movements (weekdays)

- 9 out of the 10 pairs concern regions of Northern Greece and the other border countries (none of which concerns Turkish regions)
- These 9 pairs represent more than 1/3 (36,5%) of the total movements (through all border stations)
- Top pair: Thessaloniki – Skopje representing 7,7% of the total movements
- The average distance of these pairs varies from 60 km (Serres-Petrich) up to 300 km (Thessaloniki-Sofiya)

OD / Weekday	% of the total average daily movements	Average distance in km
Thessaloniki - Skopje	7,7%	233
Thessaloniki - Strumica	5,4%	128
Serres - Petrich	4,6%	61
Thessaloniki - Sofiya	3,6%	296
Serres - Sandanski	3,5%	66
Evros - Slivengrad	2,6%	171
Kilkis - Strumica	2,6%	95
Ioannina - Gjirokaster	2,2%	75
Athens - Sofiya	2,2%	795
Drama - Gotse Delchev	2,1%	75
Total	36,5%	-

Structure of the border regions movements

The top ten pairs of the movements (weekends)

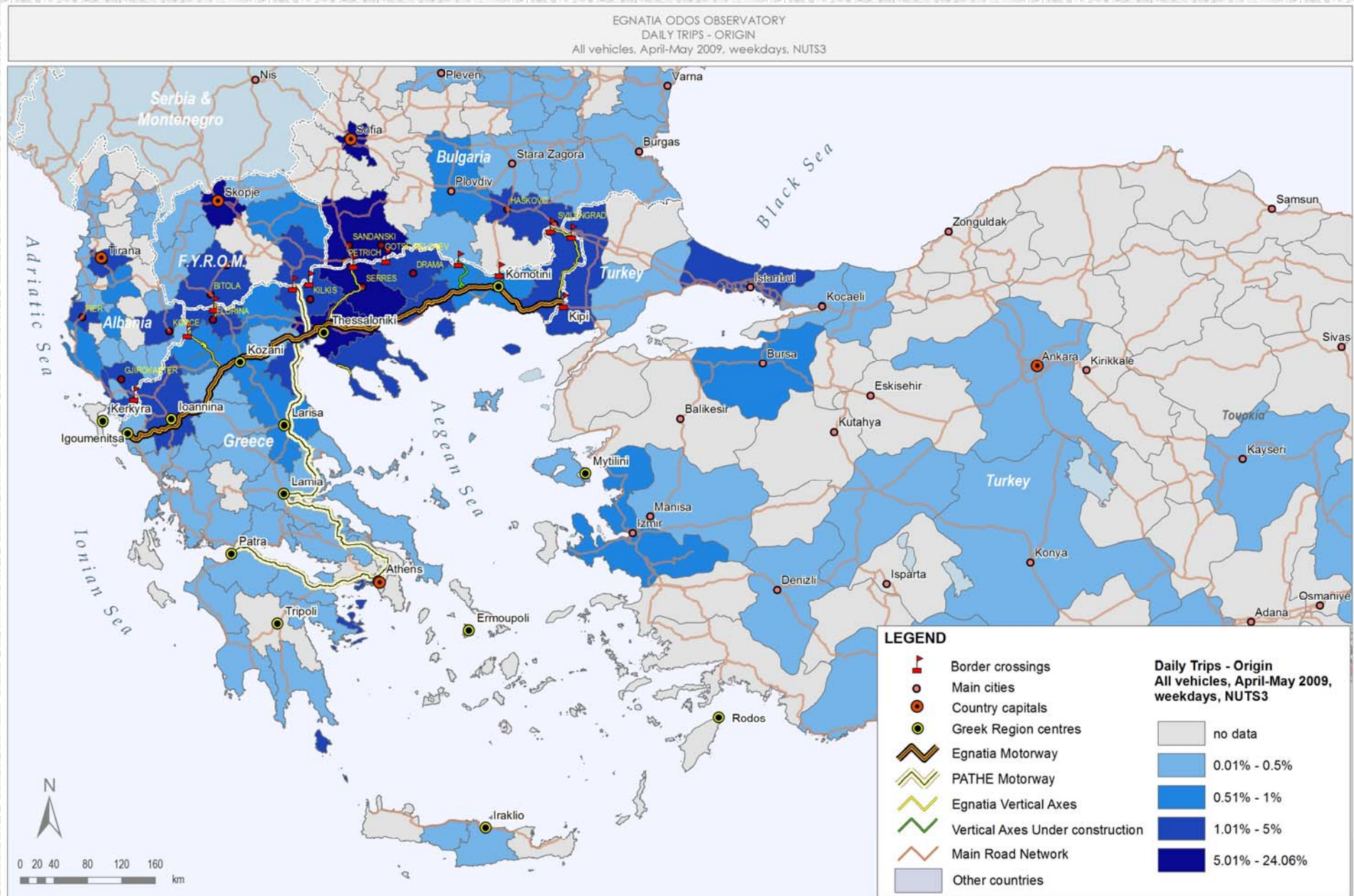
- All 10 pairs concern regions of Northern Greece and the other border countries (1 of which concerns a Turkish region)
- These 10 pairs represent a little less than 40% (38,4%) of the total movements (through all border stations)
- Top pair: Thessaloniki – Skopje representing 9,9% of the total movements
- 2 pairs (Evros – Andrianoupolis and Kilkis-Skopje, both in the border zone) are listed in the top 10 of the weekend movements, while not listed in the top 10 of the weekdays movements

Destination - Origin / Weekends	Percentage of the total average daily movements	distance (km)
Thessaloniki - Skopje	9.9%	233
Thessaloniki - Strumica	3.9%	128
Serres - Sandanski	3.7%	66
Serres - Petrich	3.7%	61
Evros (Alexandroupoli) - Edirne	3.3%	183
Thessaloniki - Sofiya	3.1%	296
Kilkis - Strumica	3.1%	95
Evros (Alexandroupoli) - Slivengrad	2.8%	171
Kilkis-Skopje	2.7%	201
Drama - Gotse Delchev	2.2%	75
Total	38%	-

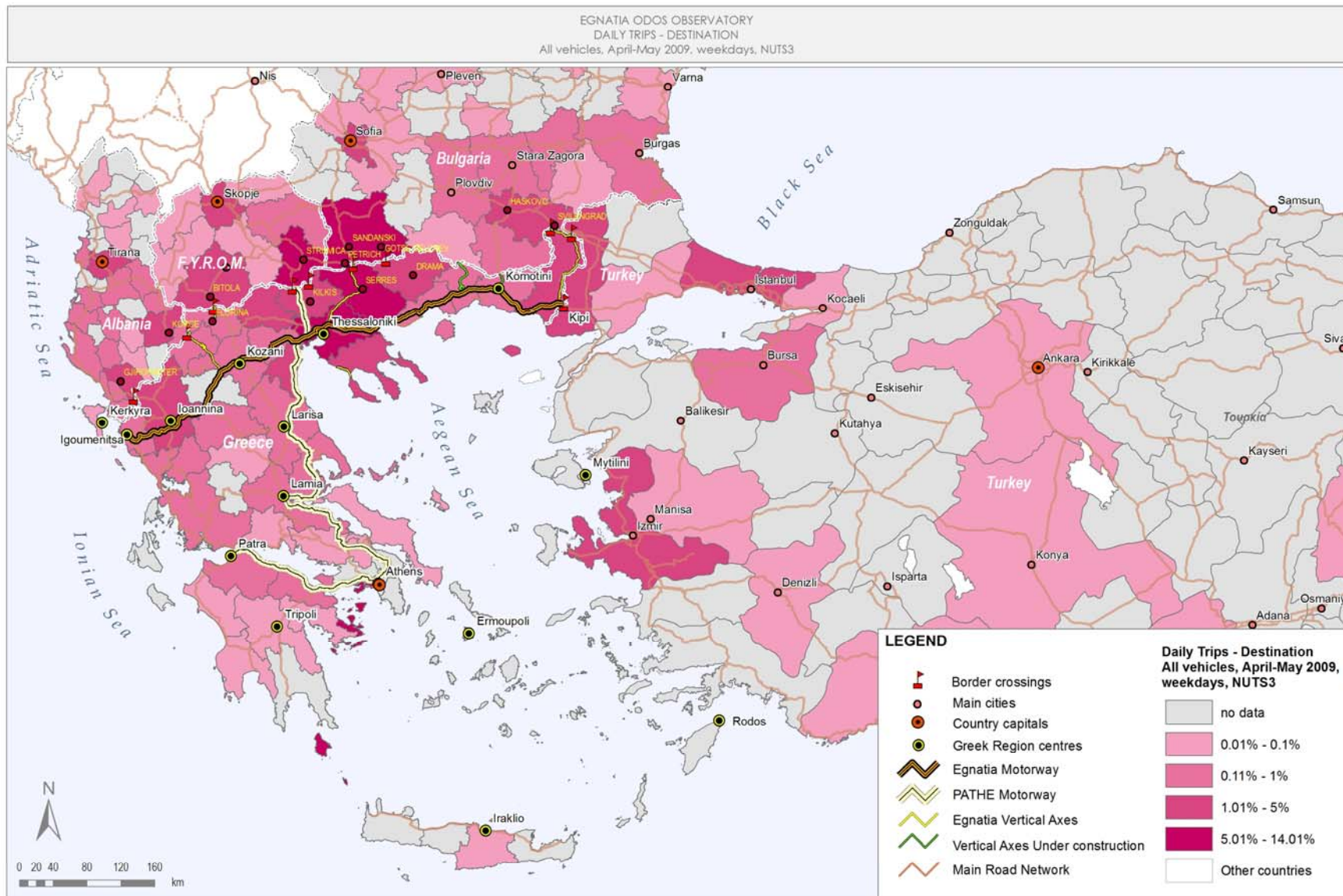
Movements within a 50km distance

- Percentage of vehicles traveling up to spread of 50 km, from the cross-border stations (all vehicles, typical period, weekday): 45% (aprox. 10.200 vehicles per day)
- Highest scores:
 - **Niki station (GR-SK): 99%** (aprox. 250 vehicles per day - main spread of 15 km, to Bitola)
 - **Kastanies station (GR-TR): 93%** (aprox. 240 vehicles per day - main spread of 6 km, to Edirne)
- Lowest
 - **Kipoi station (GR-TR): 0%**

Structure of border movements: Origin per region (Nuts 3)



Structure of border movements: Destination per region (Nuts 3)



Structure of border movements: Trip frequency – weekdays

- 9 out of 10 pairs perform very frequent movements (daily or 1-4 times a week) at percentages from 48% up to 71%.
- Some pairs of the border regions perform daily movements at noticeable percentages:
 - **Ioannina-Gjirokaster 31,2%**
 - **Kilkis-Strumica 18,3%**
 - **Evros-Slivengrad 16,8%**
 - **Serres- Petrich 14,9%**

Destination-Origin / Weekday	Daily	1-4 times a week	Total very frequent
Thessaloniki - Skopje	3.4%	45.9%	49.3%
Thessaloniki - Strumica	11.2%	59.5%	70.7%
Serres - Petrich	14.9%	44.4%	59.3%
Thessaloniki - Sofiya	2.5%	46.0%	48.5%
Serres - Sandanski	7.9%	25.3%	33.2%
Alejandrouli - Slivengrad	16.8%	35.6%	52.4%
Kilkis - Strumica	18.3%	33.6%	51.9%
Ioannina - Gjirokaster	31.2%	28.9%	60.1%
Athens - Sofiya	0.0%	55.0%	55.0%
Drama - Gotse Delchev	16.3%	46.9%	63.2%

Structure of border movements: trip purpose

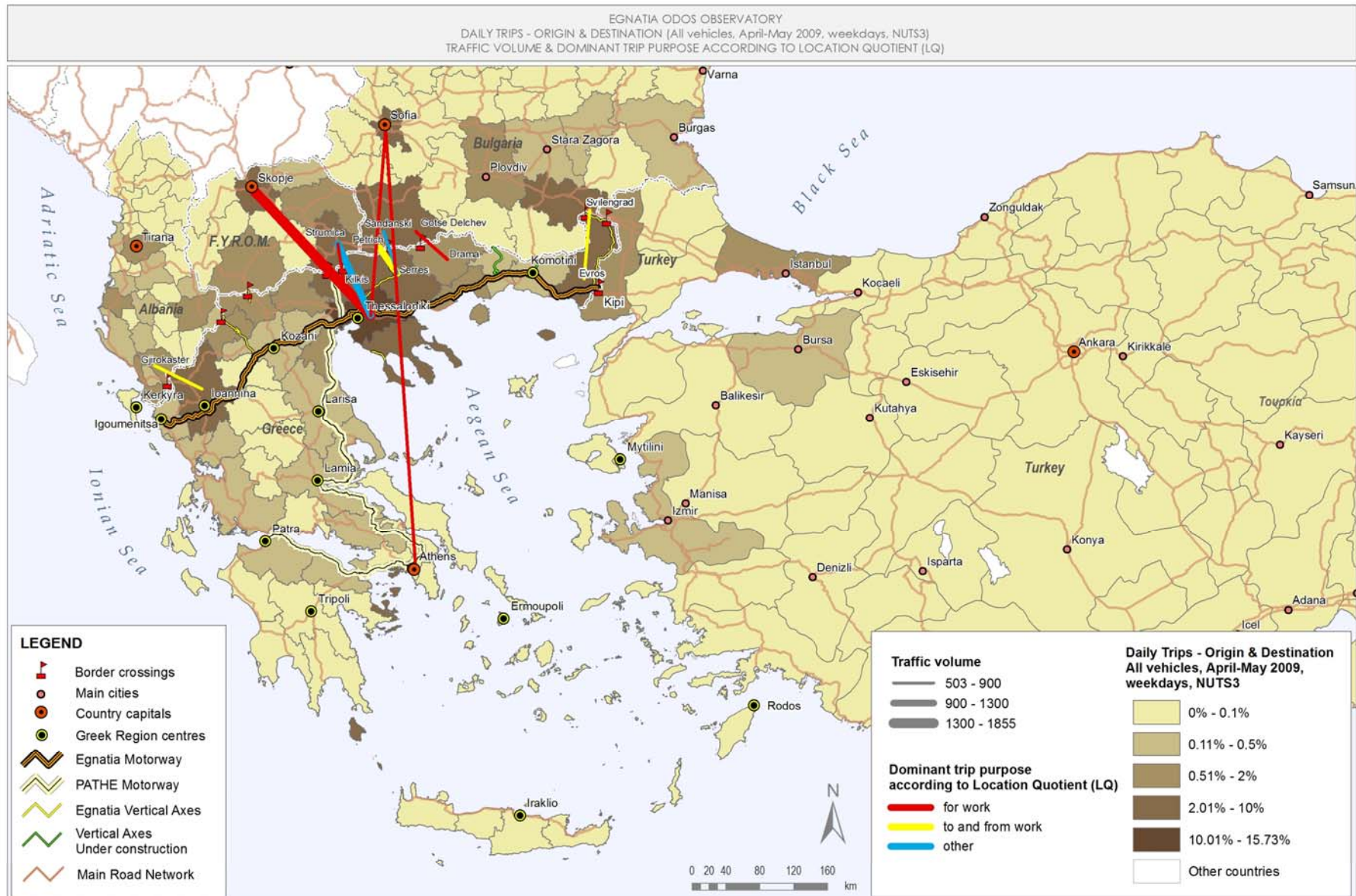
- In 7 out of the 10 top pairs, the main trip purpose is tourism/leisure
- In 3 out of the 10 top pairs, the main trip purpose is “for work reasons” (not including the reason “to and from work”)
 - 2 of these pairs are
 - **Thessaloniki-Strumica**
 - **Ioannina-Gjirokaster**

Dominant trip purpose (LQ_max) – weekdays

- There is not any pair that specializes in tourism/leisure
- 3 pairs – all border nuts 3 regions appear to have higher percentage in the category “from-to work” all performing high figures (above 30%):
 - **Ioannina-Gjirokaster**
 - **Serres-Petrich**
 - **Evros-Slivengrad**
- 2 pairs that specialize in the category “other” reasons (where shopping is included) are:
 - **Thessaloniki –Strumica**
 - **Serres-Sandanski**

OD Pairs / weekday	trip purpose - specialisation (LQmax)	% of the total daily movements of the pair
Thessaloniki - Skopje	for work reasons	42.2%
Thessaloniki - Strumica	other	23.4%
Serres - Petrich	from-to work	30.3%
Thessaloniki - Sofiya	for work reasons	41.4%
Serres - Sandanski	other	16.4%
Evros - Slivengrad	from-to work	31.4%
Kilkis - Strumica	for work reasons	42.2%
Ioannina - Gjirokaster	from-to work	37.7%
Athens - Sofiya	for work reasons	62.5%

Average daily trips – weekdays & dominant trip purpose

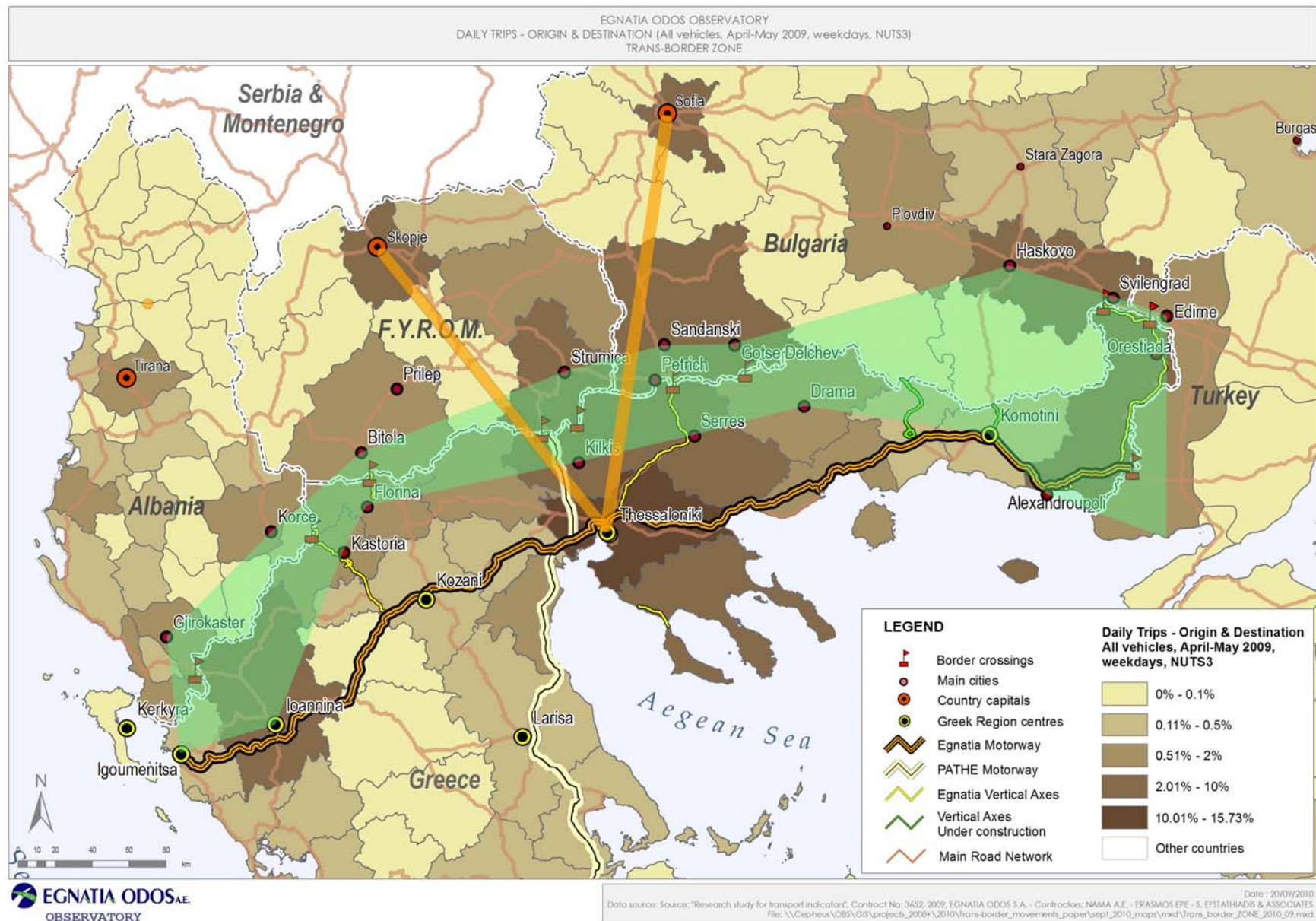


Dominant trip purpose (LQ_max) - weekends

- 4 pairs – all border nuts 3 regions appear to have relatively higher percentage in the category “from-to work” with the pair Kilkis-Strumica performing a very high figure (33,5%)
- the 2 pairs that specialize in the category “other” reasons (where shopping is included) are:
 - **Thessaloniki –Sofiya**
 - **Thessaloniki-Skopje**
- 1 pair (Evros-Andrianoupoli/east route) appears to aggregate almost only one reason, tourism/leisure

Pairs/ Final Destination - Initial Origin / Weekends	Trip purpose-specialisation (LQ_max)	% the total daily movements of the pair
Thessaloniki - Skopje	other	12.0%
Thessaloniki - Strumica	for work reasons	69.0%
Serres - Sandanski	from-to work	7.7%
Serres - Petrich	from-to work	13.6%
Alejandrouli - Andrianoupolis	tourism/leisure	91.3%
Thessaloniki - Sofiya	other	19.0%
Kilkis - Strumica	from-to work	33.5%
Alejandrouli - Slivengrad	tourism/leisure	72.8%
Kilkis-Skopje	tourism/leisure	65.9%
Drama - Gotse Delchev	from-to work	6.2%

The trans-border zone with mobility peaks



Conclusions – searching for spatial interactions

- The main findings of the research show that although border movements are still a fraction of internal trans-regional flows, they are quite important mainly as regards the frequency and the scope of journeys.
- Another important finding is related to the large differences of cross-border movements between Greece and its neighbouring countries, with the northern ones (Bulgaria and FYROM) having the greatest share, the ones from and towards Albania concerning mostly migrant flows, and those with Turkey remaining rather low and specified to tourism/leisure purpose.
- There are important difference in the movements between Greece and FYROM and Greece and Bulgaria with the first concerning very frequent movements in particular for leisure, and the second, frequent movements for work.

Conclusions – searching for spatial interactions

- Of special interest is the fact that a large share of cross-border movements concern trans-border regions and cities, mostly taking place within distances up to 50 km where some kind of networks can be traced.
- Research on the subject should go further to investigate
 - the spatial and socio-economic structure of these zone (ex. there are crucial differences between the size of the cities in this zone)
 - the type of the links between these regions and cities
 - the need for trans-border spatial planning which will encompass transport infrastructure planning.



Thank you!!

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