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Human Mobility and Climate Change at the Crossroad.
A Diachronic Corpus-Assisted Discourse Analysis of the Nexus in UK and US Newspaper Discourse

Abstract: While climate change has gradually and crucially become a 'defining symbol' of our mutual relationship with the environment, an investigation of its role in complex, multi-causal phenomena of human mobility has emerged as a salient policy-making issue only during the last years, with the period between the Cancun negotiations of the UNFCCC in 2010 and the 2015 Paris negotiations representing a crucial moment in policy making as regards the climate change and migration nexus. The purpose of the article is to explore representations of migration and displacement in the context of anthropogenic climate change in newspaper discourse through a critical diachronic corpus-assisted discourse analytical perspective. For the purpose of this study, a diachronic, domain-specific corpus of newspaper articles from a selection of UK and US broadsheets has been gathered through the Nexis online searchable database. Particular attention is placed on whether any significant discursive shifts may be identified in newspaper discourse over the periods concerned to coincide with a change in focus from 'climate refugees' to migration as adaptation.

Keywords: *climate change, migration, diachronic corpus-assisted discourse analysis, SFL, CDA*

1. Introduction

The relation between human mobility and climate change has received ever-growing attention in the public sphere over the last decades. While as early as the 1990s, the Intergovernmental Panel on Climate Change highlighted the potential "threatening short-term" effects of climate change on migration and resettlement in its first Assessment Report,[1] it was not until twenty years later with the adoption of the Cancun Agreement in 2010 (COP16) that countries formally identified "climate change-induced migration, displacement and relocation" as among major challenges the world would face in order to adapt to a warmer planet.[2] In fact, it was then that the climate-migration nexus significantly emerged at the top of the international agenda, contributing to "a distinct era of policy making".[3]

While climate-induced human mobility broadly refers to the movement of people due to changes in the climate,[4] research has recently suggested that the concept 'climate-induced' per se is highly

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[1] IPCC 1990, 5-9. The IPCC is an intergovernmental body set up by the World Meteorological Organization and the UN Environmental Programme in 1988 tasked with the assessment of the science related to climate change. See Cinzia Bevitori, *Representations of Climate Change. News and Opinion Discourse in UK and US Quality Press: A Corpus-Assisted Discourse Study* (Bologna: Bononia U.P., 2010), 19.

[2] See United Nations Framework Convention on Climate Change, "Report of the Conference of the Parties in its Sixteenth Session, Held in Cancun from 29 November to 10 December 2010" (2011), 5, art. 14 (f), https://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf; see also Koko Warner, "Human migration and displacement in the context of adaptation to climate change: the Cancun Adaptation Framework and potential for future action", *Environment and Planning C: Government and Policy*, 30 (2012).

[3] Sarah L. Nash, "From Cancun to Paris: An Era of Policy Making on Climate Change and Migration", *Global Policy*, 9.1 (2017), 53-63.

[4] Emily Wilkinson et al., "Climate-induced Migration and Displacement: Closing the Policy Gap", Report (London: Overseas Development Institute, 2016), https://www.odi.org/sites/odi.org.uk/files/resource-documents/10996.pdf.

controversial as it points to many different factors, contributing at different levels to their interrelation.[5] First of all, no clear-cut distinction can be drawn between core definitions of who counts as a 'migrant', a 'refugee', or a 'displaced person' within this context. In particular, classifying a refugee as a 'climate' refugee is problematic for a number of reasons. Indeed, according to the 1951 United Nations' "Convention and Protocol Relating to the Status of Refugees" – the key legal document formally setting out the status of people in need for protection – 'refugee' is defined as a person leaving his [*sic*] country of residence due to "well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion",[6] but no environmental or climatic reasons are mentioned. This highlights the fact that any definition of 'climate refugee' or 'environmental refugee' is rather slippery, facing not only a crucial semantic problem but also a normative one. In fact, as Bettini suggests, climate-induced migration may be best seen as a "floating signifier";[7] a concept which, due to its high indeterminacy, is more susceptible to acquiring distinct meanings in distinct contexts.[8]

A further important aspect of the debate is the dividing line between 'forced' or 'voluntary' migration, which is somewhat hazy due to the fact that any decision people take to move may involve both aspects and therefore a simple dichotomization is, again, conceptually challenging.[9] In fact, the notion 'climate-induced' in describing patterns of movement within this context is seen as problematic also because it tends to obfuscate the intrinsically complex and "multi-causal" nature of the phenomenon, which involves a number of interrelated social, political, economic and cultural dimensions which may be difficult to disentangle.[10]

The aim of this paper is thus to explore the linguistic and discursive representations of human mobility in the context of climate change in a purpose-built corpus of UK and US news articles in the span of time between the Cancun negotiations of the UN Convention on Climate Change (UNFCCC), in November 2010, and the follow-up to the 2015 Paris negotiations, held in Marrakech in 2016, to the present day in order to trace patterns of change/stability occurring at the boundary of three distinct 'critical discourse moments'.[11] As a crucial site of the struggle over meanings, media are seen to play a pivotal role in shaping public perception and opinion of science, policy and institutional actors,[12] and more specifically here, in the social construction of critical issues, such as human mobility in the context of environmental-related problems. However, while the role of the social, political and cultural context of climate-induced migration is now widely established, language choices shaping these

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[5] Jane McAdam, "Introduction", in Jane McAdam, ed., *Climate Change and Displacement, Multidisciplinary Perspectives* (Oxford and Portland: Oregon, 2010), 1-8; Benoit Mayer and François Crépeau, eds., *Research Handbook on Climate Change, Migration and the Law* (Cheltenham: Edward Elgar Publishing, 2017).

[6] UNHCR, "Convention and Protocol Relating to the Status of Refugees" (1951), art. 1, par. 2, http://www.unhcr.org/3b66c2aa10.pdf.

[7] Giovanni Bettini, "(In)convenient Convergences: 'Climate Refugees', Apocalyptic Discourses and the Depoliticization of the Debate on Climate-induced Migration", in Chris Methmann et al., eds., *Interpretive Approaches to Global Climate Governance* (London: Routledge, 2013), 123. Bettini draws on Laclau's work, see Ernesto Laclau, *On Populist Reason* (London: Verso, 2005).

[8] The term 'floating signifier', or 'empty signifier', was coined by Claude Lévy-Strauss in the 1950s. See also Katherine E. Russo, "Floating Signifiers. Transnational Affect Flows", in Andrew Baldwin and Giovanni Bettini, eds., *Life Adrift: Climate Change, Migration, Critique* (London: Rowman and Littlefield, 2017), 195-201.

[9] McAdam, "Introduction", 2.

[10] Foresight, "Migration and Global Environmental Change", Final Project Report (London: The Government Office for Science, 2011), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/287717/11-1116-migration-and-global-environmental-change.pdf; see also Etienne Piguet and Frank Laczko, eds., *People on the Move in a Changing Climate: The Regional Impact of Environmental Change on Migration* (Dordrecht: Springer, 2014), 2.

[11] Anabela Carvalho, "Media(Ted) Discourse and Society", *Journalism Studies*, 9.2 (2008), 161-177.

[12] Maxwell T. Boykoff, *Who Speaks for the Climate? Making Sense of Media Reporting on Climate Change* (Cambridge and New York: Cambridge University Press, 2011).

discourses should also be emphasized. The aim of our research and the diachronic corpus-assisted discourse analytical approach proposed, in line with extensive research combining critical discourse analysis with corpus-assisted methodologies,[13] is to develop a broader understanding of the ways in which discourses of human mobility are produced and reproduced in the media debate. In addition, our focus here on the US and UK press separately highlights whether language choices with regard to climate change are common to some of the most widely read English-language newspapers or whether there are any fundamental differences in representation.

2. Corpus and Methods

This study follows a corpus-assisted discourse studies (CADS) approach, according to which texts are collected in electronic form and queried using corpus software to extract quantitative information providing starting points for a more qualitative, manual analysis.[14] This means looking beyond the concordance line to the expanded co-text and the whole article as well as outside the text itself, to the widened context, gathering data through different strategies and research procedures, as well as testing findings where necessary against external data sources with the aim of detecting patterns of ideological meaning across texts and contexts.[15] Our discourse-analytical approach involves drawing on elements of Systemic Functional Linguistics (SFL) as well as Critical Discourse Analysis (CDA), particularly as regards the transitivity patterns encountered in relation to our node words. In SFL, patterns of transitivity relate to the analysis of the experiential meaning in the clause, and choices made at the lexico-grammatical level include selecting processes, participants and circumstances.[16] The purpose of the analysis is thus to identify 'what is going on', as well as tracing the role of the participants involved in the events, as will be explained in a later section.

In order to investigate climate change discourses at the interface with migration in the press diachronically, we used the Lexis-Nexis interface to access all articles containing the node words "climate change" and/or *migra** and or/*refugee**[17] in *The Guardian* and the *Daily Telegraph* as regards UK newspapers, broadsheets representative of the political left and the conservative party respectively; and from *The New York Times* and *The Washington Post*, representative of the liberal and the conservative United States press. The articles were selected and stored for three distinct periods coinciding with the Conferences of the Parties to the UNFCCC. The first (Period I) spans the 5 years between the Cancun conference and the Paris conference, Period II covers one year between Paris and Marrakech, and Period III one year following Marrakech up to the time of writing (29/11/2017).

The articles were stored electronically after discarding irrelevant and/or duplicate texts and removing metadata. The whole corpus amounts to 476 articles in the region of 552,700 running words. The number of articles and total word count of each part of the US and UK sub-corpora is shown in Table 1.

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[13] For an overview and inter alia see Gerlinde Mautner, "Checks and Balances: How Corpus Linguistics Can Contribute to CDA", in Ruth Wodak and Michael Meyer, eds., *Methods of Critical Discourse Analysis* (London: Sage, 2009), 122-143; Paul Baker et al., "A Useful Methodological Synergy? Combining Critical Discourse Analysis and Corpus Linguistics to Examine Discourses of Refugees and Asylum Seekers in the UK Press", *Discourse and Society*, 19.3 (2008), 273–306.

[14] Alan Partington, "Modern-diachronic Corpus-assisted Discourse Studies", *Corpora*, 5.2 (2010).

[15] Michael Stubbs, "Grammar, Text, and Ideology: Computer-assisted Methods in the Linguistics of Representation", *Applied Linguistics*, 15.2 (1994), 201-221; See also Cinzia Bevitori, "Values, Assumptions and Beliefs in British Newspaper Editorial Coverage of Climate Change", in Chris Hart and Piotr Cap, eds., *Contemporary Critical Discourse Studies* (London: Bloomsbury, 2014), 603-625.

[16] Michael A. K. Halliday and Christian M. I. M. Matthiesen, *An Introduction to Functional Grammar* (London: Arnold, 2004).

[17] The asterisk is used as a wildcard character to access word forms of the lemma. The * replaces any letter or letters found in that position, so that *refugee** will return texts including both *refugee* and *refugees*.

Corpus /period	US sub-corpus		UK sub-corpus	
	no. articles	Word count	no. articles	Word count
Period I (29/11/2010 -29/11/2015)	133	151,942	105	108,230
Period II (30/11/2015 – 6/11/2016)	65	93,176	47	43,759
Period III (7/11/2016 – 29/11/2017)	92	119,989	34	35,605
Totals	290	365,107	186	187,594

Table 1. Articles and word count of the US and UK sub-corpora

We then made an initial quantitative analysis of the US and the UK sub-corpora, using a combination of corpus-assisted software tools such as WordSmith 6.0 and SketchEngine, beginning with wordlists to identify frequent terms and highlight areas of further interest.[18] The search terms *migra** and *refugee** themselves offered starting points for further analysis, since they represent some of the issues and the participants involved with climate change. A preliminary investigation of the collocational profile of the search words across the three periods was conducted in order to identify paths worth exploring. To do this, we took into consideration words commonly co-occurring with the node word with a certain frequency and within a given word-span of 10 words to the left and right of the node. Collocates were selected according to parameters with a z-score (i.e., a statistical calculation measuring the strength of collocation of an item with the node word) greater than 3 and an absolute frequency of at least 3. A detailed examination of the extended concordance lines was done with the aim of identifying dominant motifs around the climate-migration nexus across periods, bearing in mind cross-disciplinary literature relating to the issue. Prior to our research, in fact, and in line with CADS practice, extensive reading was done of climate change literature from a variety of sources including the reports themselves.

In the following section, we give quantitative details of the US and UK sub-corpora. We then discuss the UK and the US sub-corpora separately at first as regards the node words investigated, and typical discourses emerging across periods, before comparing and summarising the information gained in relation to the whole corpus.

3. Quantitative Analysis

In this section we begin with a brief description of the quantitative data, first presenting details of sub-corpus contents and then the occurrences of word forms across sub-corpora.

Not unexpectedly, the newspapers of a left-leaning political orientation in our corpus were more concerned with the issue of climate change than the more conservative newspapers, which meant that greater attention was given to the topic. The *Daily Telegraph* (DTELE) for example had only 10 articles on the topic of climate change with the selection criteria required, compared with 176 articles in *The Guardian* (GUA). Similarly, *The Washington Post* (WP) had 36 articles compared with 254 in *The New York Times* (NYT). As regards quantification, this has been taken into account by using relative frequencies throughout. Any skewing of results due to the smaller number of articles in the *Daily Telegraph* and *The Washington Post* has duly been taken into consideration in reporting the

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[18] Mike Scott, *WordSmith Tools*, version 6 (Stroud: Lexical Analysis Software, 2012); Adam Kilgarriff et al., "The Sketch Engine", in Geoffrey Williams and Sandra Vessier, eds., *Proceedings of the 11th EURALEX International Congress* (Lorient: Université de Bretagne-Sud, 2004), 105-115.

findings.

Table 2 shows the relative frequency of the lexemes *migra** and *refugee** across the four newspapers in the sub-corpora, divided according to the three periods considered.
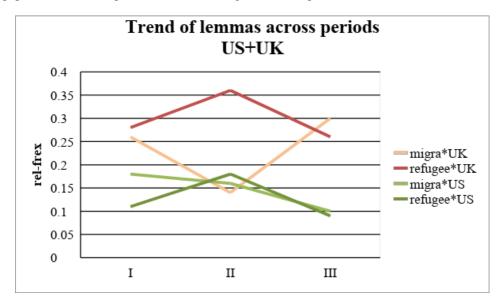

Table 2. Relative frequencies of the lemmas *migra* /refugee** across the UK/US press according to period

Relative frequencies of *refugee** tend to rise slightly in Period II, corresponding to the outbreak of the Syrian refugee crisis in both the UK and US sub-corpora. The behaviour of *migra** is rather different however, with a marked decline in the UK sub-corpus in Period II. While the US sub-corpus shows a fairly stable trend for both lexemes across the periods, a comparison of the relative figures shows an almost specular trend as regards the UK sub-corpus. Though starting out and finishing at almost the same level, Period II shows a dip in the number of occurrences of *migra** corresponding to an almost identical rise in *refugee**.

Closer investigation shows a higher frequency throughout of the noun form relating to the issue of migration compared with the noun referring to the people. While we have already mentioned the decline in incidences of *migra** as a whole during Period II, the biggest drop in Period II is in the incidence of the noun forms migration and – to a lesser extent – the reference to migrant/s the people, while less variation is found in the verb and adjective forms. This contrasts with the analysis of word forms on the US sub-corpus, which shows a gradual decline of all word forms over time. As regards the lemma *refugee**, the noun form *refugee/s* is more frequent than the premodifying noun throughout in the UK sub-corpus, a sign that the newspapers are talking about the people more often than the issue. However, there is a gradual decline in occurrences of the nouns in these articles from 2010 to the present, corresponding to a rise in the occurrence of *refugee* as premodifying noun as from Period II. In contrast, in the US while the noun form tends to increase slightly from 0.09 to 0.14 in Period II, it shows a sharp decline to 0.03 in Period III. The premodifying noun is less frequent but more stable, over the periods.

The following section presents a qualitative analysis of the node words presented above.

4. Contextualizing Data: Discourses around 'Migration', 'Migrants' and 'Refugees' across Time

'Climate-induced migration' may be defined as an umbrella concept entailing representations of migration, migrants and refugees. In this section, we aim at a comparative linguistic and discursive analysis of the most frequent word forms of *migra** and *refugee** across the three periods in order to explore how these items function in the construal of particular identities and discourses within their respective national outlets. Extracts are taken from all the four broadsheets in the UK and US sub-corpora as detailed in the previous section.

While relying on the notion of 'critical discourse moments', as explained in the introduction, provides us with a viable, or reasonable, way of dividing up the corpus to meet our research questions, it must be noted that we do not intend to suggest or imply that any shifts in discursive patterns of human migration have taken place at the edge of these 'critical' events; stability might be 'disturbed' either gradually or by sudden events and for a variety of reasons.[19] Furthermore, considering that "no consistent discourse on climate change and migration has emerged from which to develop policy responses", we might also expect this to be reflected in media discourse.[20] Nevertheless, we will try to interpret the linguistic traces in the texts we examine in an attempt to map any changes in the representations of discourse over time. Since our focus is on diachronic changes, we will naturally begin by examining the first period, noting some characteristics which may or may not be carried over in subsequent periods. This analysis will give impetus for a more thematic progression, as different elements of interest arise across the UK and US sub-corpora.

4.1 What's in a Name? Climate Refugees or Climate Migrants?

4.1.1 UK Press

We mentioned in the introduction the problems associated with the use of the term *climate (change) refugee.* Beyond the critical normative quibble, this representational choice acts as a form of identification, which may be ideologically burdened.[21] In fact, as some scholars highlight, climate change refugees tend to be portrayed either as 'victims' or 'terrorists': two opposing narratives which are seen to misrepresent the complex nature of the phenomenon.[22] In the UK press, 25% of the occurrences of the noun form of *refugee** are premodified by *climate (change)* in Period I, slightly fewer with 20% in Period II. There is a higher frequency in Period I of instances between inverted commas, suggesting self-styled names or new coinages emerging from particular situations, as in the following:

> Dire predictions of waves of forced climate change "refugees" have been made for more than 20 years. (I_GUA: 04/02/2011)

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[19] Bevitori and Jane Helen Johnson (forthcoming), "Exploring Diachronicity in Specialized Corpora to Investigate Discourse: The Case of Climate-induced Migration".

[20] Nash, "From Cancun to Paris", 54.

[21] Theo van Leeuwen, "The Representation of Social Actors", in Carmen R. Caldas-Coulthard and Malcolm Coulthard, eds., *Text and Practices: Readings in Critical Discourse Analysis* (London: Routledge, 1996), 32-70; see also Katherine E. Russo, *The Evaluation of Risk in Institutional and Newspaper Discourse: The Case of Climate Change and Migration* (Napoli: Editoriale Scientifica, 2018).

[22] Alex Randall, "Either Victims or Terrorists", *New Internationalist* (8 December 2017), https://newint.org/blog/2017/12/08/climate-migrants-media.

We first hear about an attempt to apply for legal protection as 'climate refugee' in relation to the Geneva Convention in Period I:

> A man from a tiny South Pacific island has asked a court in New Zealand to recognise his family as climate change refugees, saying they face "serious harm" if they return. (I_GUA: 17/10/2013)

This particular application was ultimately dismissed, yet the polemics continue and there is a sense that changes are taking place on a legal level, as by Period III we read the following proposal:

> New Zealand considers creating climate change refugee visas; Minister says experimental humanitarian visa category could be introduced for people displaced by rising seas. (III_GUA: 31/10/2017)

And indeed association is much stronger in Period III, where 50% of the noun forms of *refugee** are premodified by *climate (change).* While Wilkinson et al. claim that actors and experts in the climate change field are now ceasing to use the term 'climate refugee', we cannot say this is true in the UK press.[23] Indeed, as we have seen, in Period III we are much more likely to find refugees described as *climate (change) refugees* than in the earlier periods.

Migrants instead rarely appear with any qualification. This is perhaps not surprising, given the multi-causality of migration.[24] In Period I, 25% of occurrences of *migrant* that have any qualification at all are described in relation to the type: *economic* (8), with *climate change migrants* (3) appearing towards the very end of Period I. In the same period they are occasionally described as *forced* or *illegal*. Instead, migrants are hardly ever further described in Period II and III, and when they are it is in relation to their origin (Ethiopian in Period II and African in Period III). So there appears to be less need as time goes on to label migrants than refugees.

Refugees mentioned in Period I are mainly identified through their provenance, such as Afghan, Syrian, Rohingya and Somali. More specifically labelled 'climate change refugees' include America's first *climate refugees* in Alaska, as well as those from Bangladesh, and the Pacific. On another seven occasions, we have *refugee*/s co-occurring with word forms of *displace*. As discussed in Nash, forced movement is usually described as 'displacement', while 'migration' tends instead to be used for voluntary movement.[25] In the UK sub-corpus however, *migration* sometimes also co-occurs with *forced* in Period I. As in the case of refugees, *migration* also co-occurs with large numbers (e.g., *mass*) and this is increasingly the case through the periods. Indeed, 12% of all incidences of *migra** in Period I (16% in Period II and 24% in Period III) co-occur with large numbers, in line with Baker et al. and Russo's findings that large numbers are the most consistent co-association, creating a sense of objectivity though factual sources and specific figures are rarely cited.[26] Indeed, there is little consensus about the extent to which such numbers correspond to fact,[27] and this is picked up in an early article in *The Guardian* quoting the International Institute for Environment and Development which disputes the cause-and-effect nexus between climate change and migration:

> "The studies give no reason to think that environmental degradation linked to climate change will result in large flows of international migrants," says a senior researcher with the (IIED) in London. (I_GUA: 04/02/2011)

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[23] Wilkinson, "Climate-induced Migration and Displacement", 3.
[24] Foresight, "Migration and Global Environmental Change", 32.
[25] Nash, "From Cancun to Paris", 58.
[26] Baker et al., "A Useful Methodological Synergy?", 273–306; Russo, "Floating Signifiers", 195-201.
[27] Kate Burrows and Patrick L. Kinney, "Exploring the Climate Change, Migration and Conflict Nexus", *Int. J. Environ. Res. Public Health*, 13.4 (2016), 443; Wilkinson, *Migration*, 3-4.

Whereas there was an increasing tendency over time to associate word forms *migra** with large numbers, the opposite is true for *refugee**. For example, 20% of occurrences of *refugee** in Period I are marked by some sort of reference to large numbers, a typical example being:

> A concern for humanitarian groups is how to deal with long-term refugees or displaced people who are unlikely to return home – more than 20 million refugees are trapped in protracted exile. (I_GUA: 16/10/2012)

Instead, 14% of occurrences of *refugee** co-occurred with large numbers in Period II and only 7% in Period III. To sum up, the use of the large number factor increases over time with regard to *migra** but decreases with regard to *refugee**. Perhaps we could conclude from this that we have evidence of a gradual shift from the standard images of the 'barbarians at the gate' arriving in their hordes, once applied to refugees and now to migrants.[28] This is also evident in the transitivity patterns associated with migrants and refugees across the periods. Verbs co-selected with migrants as Object in Period I include '*died*' and '*been killed*', but apart from these associations, which might give rise to an empathetic response, we have migrants viewed as a problem, being a burden, compelled to leave, dumped on impoverished states. Where migrants are the grammatical Subject, they are mainly associated with verbs of movement ('*arriving*', '*leaving*' their countries, '*heading for*'), or '*battling*' to stay. In Period II they are welcomed rather than criminalised – but it then emerges that the second is the status quo, the first verb is just a radical idea. In Period III migrants both as Subject and Object are mainly associated with verbs of movement.

In Period I, at first glance verbs associated with refugees as grammatical Object look positive. '*welcome*' figures highly but a closer look shows that refugees are welcomed – but only if they are '*deserving*' and not '*illegal*' or '*queue-jumpers*', while the politicians who welcome them are '*brave*'. Verbs co-occurring with refugees in Period II tend to have negative associations ('*rape*', '*abuse*', '*imprison*', '*treated with suspicion*'). Verbs of giving/taking are frequent: refugees are '*received*', countries '*take them in*'. This is probably due to the focus on the Syrian refugee crisis at this time. A continuation of this 'taking in' occurs in Period III, where many verbs associated with refugees as grammatical Object refer to housing (or lack of): '*evict*', '*house*', '*accommodate*'. Like migrants, refugees as Subject occur with verbs of movement ('*arriving*', '*fleeing*', '*heading*', '*spilling*', '*ending up*') throughout the periods.

When *migrant** co-occurs with another participant, it is mainly found together with *refugee/s* (in 14% of cases in Period I), as in the following:

> Much less has been said about the macroeconomic push factors compelling migrants and refugees to leave their homelands and what we might do to address them. (I_GUA: 13/07/2015)

The Guardian quotes Labour's Diane Abbott putting the relationship between migrants and refugees into words:

> I would remind you, thousands of people crossing the Sahara, risking their lives in the Mediterranean, coming over the Balkans, are also economic migrants and we do not want to fall into the error of thinking that refugees are in some sense a class of migrant more deserving of our sympathy. (I_GUA: 05/11/2015)

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[28] Bettini, "Climate Barbarians at the Gate? A Critique of Apocalyptic Narratives on 'Climate Refugees'", *Geoforum*, 45 (2013), 63-72.

However, the association between migrants and refugees in the UK press gradually becomes weaker, with only 9% of occurrences of *migrants* associated with *refugees* in Period II, and 5% in Period III, suggesting a gradual divergence between the two identities. It is also worthy of note that *refugees* are less strongly associated with *migrants* than *migrants* are with *refugees*. Just 6% (16) of all mentions of *refugees* occur with *migrants* in Period I, with even fewer in Period II and Period III. So basically, while in the period Cancun to Paris, discourses around migrants was quite likely to include refugees, this probability levelled out in later discourse, while refugees tended to have their own separate discourse throughout.

4.1.2 US Press

Unlike in the UK press, analysis of the collocation behaviour of the lemma *migra** in the US sub-corpus across periods shows a very high incidence of items relating to animal/wildlife migration, amounting to 40% of all instances across the three periods; typical collocates, in fact, include *assisted, patterns, routes, bird/s,* and *butterflies,* amongst many others, as the following example illustrates:

> Birds are migrating earlier and earlier each year, and scientists have long suspected that climate change is responsible. A new study by researchers at the University of East Anglia in England shows that individual birds migrate like clockwork, but nesting and hatching are happening earlier as a result of warmer temperatures, and this appears to be linked to the advancing of overall migration patterns. (I_NYT: 19/11/2013)

The focus of *The New York Times* on migration in relation to wildlife issues is clearly indicative of a higher sensitivity to environmental issues of this outlet as compared to both *The Washington Post* and the UK newspapers; however, as regards human mobility, the collocational behaviour of the most frequent word forms in the US sub-corpus – both nouns 'refugees' and 'migrants' – shows a semantic preference for quantification (*million, millions, number, thousands*), verbs and nouns related to movement (e.g., *fleeing, fled*, *heading, scrambling*), as well as lexical expressions tending to construe human mobility through water metaphor, such as *flow, flood, influx, waves*.[29] Nonetheless, in spite of a higher incidence of these lexical resources in Period I, its consistent use is clearly instrumental in creating emotionally charged strategies of collectivization, and at the same time, dehumanization of the individuals moving, or being forced to move. What is more, the association between migrants and refugees, suggesting mutually exclusive categories, is definitely stronger in 2015 and 2016, thus temporally covering the last part of Period I and throughout Period II, which is seen to coincide with the 'refugee crisis'. Although these meaning patterns are quite stable over time, a number of differences emerge as regards the construal of human mobility in the US press.

In the period between Cancun and Paris, which covers the largest span of time, 'migrant' is typically co-selected with 'Europe', as well as Middle Eastern countries such as 'Syria', 'Turkey', 'Jordan', 'Lebanon'. In particular 'Europe', as a participant in the clause, represents the main place of destination of migrants, thus pointing to discourses of cross-border displacement. What is more and at closer inspection, when the lemma 'migrant' occurs as Subject, it typically co-occurs with verbs such as *flee*, *heading*, *crossing, scrambling*, suggesting a type of hurried movement that involves escaping difficult life situations; however, representations of migrants commodified as Objects or 'goods' is not infrequent as the following example illustrates:

> And most of the growth will come from the poor, strife-ridden regions of the world that have been sending migrants scrambling to Europe in search of safety and a better life. (I_NYT: 16/09/2015)

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[29] See also Russo, "Floating Signifiers", 195-201.

While highlighting some of the potential problems (including costs) the mass movement of people may be creating in countries of destination, the US press tends to identify migrants moving in order to improve their living conditions. In fact, the frequent co-occurrence of 'migrant' both as a premodifier of 'workers' (7) and as a noun modified by adjectives such as 'economic' (5) is a clear indication of the specific semantic construal of the migrant identity:

> As Africa and the Middle East continue to warm and wars rage, economic migrants and war refugees are making perilous journeys to flee to Europe. (I_NYT: 13/09/2015)

In contrast, as can be evinced from the above extract, the analysis of the lexical item 'refugees' shows that the word is typically associated with words in the semantic field of 'war'; however, words relating to the 'environment' are also present. To begin with, 'drought' is one of the most frequent premodifiers of 'refugees'. However, in contrast with representations of 'refugees' as people 'escaping war and persecution', according to the 1951 UN Convention, 'drought' refugees, or the semantically related 'environmental' refugees, as a preferred lexical choice in this period, does not point to cross-border movement but, rather, to the internal movement of people, in particular from rural to urban areas. Indeed, dry weather, desertification, water and food shortages are posited as main drivers for the violent uprisings of the Arab springs since 2011 as well as one of the consequences of the Assad regime's failure to cope with the problem. The following is a typical example:

> "Half the population in Syria between the Tigris and Euphrates Rivers left the land" for urban areas during the last decade, said Aita. And with Assad doing nothing to help the drought refugees, a lot of very simple farmers and their kids got politicized. (I_NYT: 19/03/2013)

Although the link between human mobility due to environmental problems, such as droughts, water/food shortages, and conflict is already present, it becomes more frequent in the period witnessing the emergence of the 2015 refugee crisis:

> "Vulnerability is increasing," Mr. Zamudio added. Extreme events will occur "more often and stronger" and "you will have more people affected by climate change," he said. The council report exposes another dimension of pressure on humanitarian agencies. They are already struggling to cope with about 60 million people driven from their homes by conflict or persecution at a time when Western countries are showing a growing hostility to immigrants. (I_NYT: 21/05/2015)

Expressions of fears and concern about the likelihood of the situation to aggravate, due to climatic events, are indeed very frequent in this period; moreover, the use of intensifiers such as 'increasing' and 'growing' tends to construe an atmosphere of doom. Interestingly, since a corpus-discourse analytical approach allows the researcher to triangulate between concordances, texts and data, corpus evidence shows that 'security' appears as a strong collocate of 'climate' in Period I, in contrast to the other two (79% of instances of 'security' are co-selected with 'climate'), hinting that discourses of 'securitization' tend to prevail. Climate change is, in fact, represented as a security 'threat' and, more specifically, as a 'national' one: the adjective 'national' emerges as the strongest modifier of 'security' (14), particularly during President Obama's last mandate:

> The accelerating rate of climate change poses a severe risk to national security and acts as a catalyst for global political conflict, a report published Tuesday by a leading government-funded military research organization concluded. (I_NYT: 14/05/2014)

It must be mentioned that, in contrast to later periods, instances of 'climate refugee' appear only sporadically in this period. However, those instances are closely related to a restricted number of geographical areas, in particular in South Asia and, more specifically, to those people/communities living in vulnerable areas and deeply affected by extreme weather conditions (e.g., Bangladesh or the Philippines), which, despite not contributing to gas emissions, are paying the costs of developed countries.

4.2. Discourses of Adaptation and Resilience

4.2.1 UK Press: Good, Dad or the 'new normal'?

There are a number of articles in Period I in the UK press in which migration is positively evaluated. For example, it is highlighted as a solution, perhaps as a result of such framing in the influential Foresight Report (2011), and in contrast to "most governments and international agencies" who, unfortunately "tend to see migration as a problem that needs to be controlled instead of a key part of the solution" (I_GUA: 04/02/2011). Migration in Period I is also reported as a "good way of dealing with the imminent effects of climate change", or "no 'crisis': it's the new normal as the climate changes", "the beginning of a new paradigm", and "a valuable adaptive response", as in the following:

> "Migration can be a good option - it is a way of adapting to climate change", said Neil Adger, professor of environmental economics at the University of East Anglia. (I_GUA: 20/10/2011)

The narrative of migration as adaptation develops out of seeing migration as resilience,[30] whereby the onus is placed on the individual to find a coping mechanism, shifting responsibility away from those countries producing most of the causes of climate change onto the individuals in the global South.[31] In the UK sub-corpus, word forms of *adapt** are frequent in Period I (0.05) and even more so in Period III (0.07), these later articles often featuring a critical note to highlight the problems involved with adaptation, such as costs.

Interestingly, though in a few cases only, the people involved are not just those in remote countries but also in the UK:

> because migration might be a form of adaptation many Britons may also have to consider. According to the Environment Agency, 7,000 British properties may be lost to rising sea levels over the next century. These people too will need to be relocated. (I_GUA: 18/08/2015)

As in this example, adaptation often involves 'relocation' or resettlement' and these lemmas appear with particular frequency in Period II (*relocat** 0.07 and *resettl** 0.05). While *resettl** is particularly connected to Australia's relations with the Pacific Islanders, as well as internal movements within the US (Louisiana), *relocat** often refers to the situation in Alaska. Though most migration after disasters due to climate change disasters takes place internally,[32] the UK media focuses on internal migration much less often (only 10%, 3% and 15% of mentions of *migration* in each period) than cross-border or otherwise unspecified migration, throughout the periods considered.

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[30] Richard Black et al., "Climate Change: Migration as Adaptation", *Nature*, 478 (2011), 447–449; Bettini, "Where Next? Climate Change, Migration, and the (Bio)politics of Adaptation", *Global Policy*, 8.1 (2017), 33–39.
[31] Romain Felli and Noel Castree, "Commentary: Neoliberalising Adaptation to Climate Change: Foresight or Foreclosure?", *Environment and Planning A*, 44 (2012), 1-4.
[32] Burrows and Kinney, "Exploring the Climate Change", 443.

The words co-occurring with *migration* and their connotations in the UK sub-corpus show a more positive focus in Period I, with migration being 'not simply a problem', 'a good way', and even becoming 'normalised':

Thanks to global climate change, mass migration could be the new normal. (I_GUA: 18/08/2015)

However, *migration* is increasingly mentioned over time in association with negative words and phrases including frequent co-occurrences of 'massive forced migration', 'the last option', 'mass forced', 'unprecedented migration' in Period III, as in the following example:

and the forced migration of tens of millions of people across the region, overwhelming security forces and government. (III_GUA: 10/08/2017)

The normalisation of migration, whereby what seemed to be a crisis or a catastrophe eventually gets to be "perceived as part of the normal run of things",[33] is no longer presented as a remote hypothesis but as a certainty, and once more in connection with security issues. References to security in the UK press tend to be more general, as exemplified in the following extract in *The Guardian* in Period III attributed to external sources:

Climate change is set to cause a refugee crisis of "unimaginable scale", according to senior military figures, who warn that global warming is the greatest security threat of the 21st century and that mass migration will become the "new normal". (III_GUA: 01/12/2016)

Such a pessimistic narrative begins much earlier in the *Daily Telegraph,* however, with a typical excerpt from Period I being:

The impact of climate change and degradation of land and oceans will play an increasingly important role in migration as its impact on people's livelihoods grows ever greater. (I_DTELE: 20/10/2011)

Though mainly in a single article presenting the catastrophic consequences of climate change, doom-laden language accompanies most of the occurrences of migration here, all suggesting it is a problem due to the large numbers, on a biblical scale, a crisis in terms of its scale and severity, and something to be dealt with. Such phrases contribute to creating a discourse of migration as a threat.[34] The creation of anxiety and the feeling of impending catastrophe in this example (e.g. repetition of 'warn', 'impact', repeated use of the modal 'will') helps to form "apocalyptic narratives [which] reinforce the representation of migration as a threatening dysfunction".[35] Migration represented in this way is something to be guarded against and from here it is easy to make connections with security issues.[36] This trend, as some scholars argue,[37] tends to occur within the "institutional framework of neoliberal capitalism", planned to control the uncertainties and unsteadiness associated with climate change. The narrative of the *Daily Telegraph* continues to report the problems caused by migrants in terms of 'pouring over the borders', 'sleeping rough', appearing in large numbers, and being 'bussed to

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[33] Slavoj Žižek, *Living in the End Times* (London: Verso, 2010), 378.

[34] Bettini, "Where Next?", 33–39; Nigel Clark and Giovanni Bettini, "'Floods' of Migrants, Flows of Care: Between Climate Displacement and Global Care Chains", *The Sociological Review Monographs*, Special Issue: "Care and Policy Practices", Natalie Gill et al., eds., 65.2 (2017), 36-54; Baker et al., "A Useful Methodological Synergy?", 273–306.

[35] Bettini, "(In)convenient Convergences", 130.

[36] Bettini, "Where Next?", 33–39.

[37] Daniel Faber and Christina Schlegel, "Give Me Shelter from the Storm: Framing the Climate Refugee Crisis in the Context of Neoliberal Capitalism", *Capitalism Nature* Socialism, 28.3 (2017), 1-17.

temporary accommodation'. Such discourse is typical of that identified by Baker et al. as regards migrants, refugees and asylum seekers and is not unsurprising for this conservative newspaper.[38] As we said above, there are very few articles about climate change in the *Daily Telegraph* but it is telling that most have this negative slant. Instead, such discourse is not unexpectedly less prominent in *The Guardian*, though as we have seen in the latest period *The Guardian* also presents a number of examples of this view.

4.2.2 US Press: America's Displaced

In the period after the Paris negotiations and before Marrakech, a significant shift is observed in the US sub-corpus. First of all, the premodifier 'ecological', unlike in the UK sub-corpus where the word never co-occurs with 'migrant', emerges as the top collocate of 'migrants' in the immediate co-text to the left of the word, although its mention is exclusively found in relation to China:

> China calls them "ecological migrants": 329,000 people whom the government had relocated from lands distressed by climate change, industrialization, poor policies and human activity to 161 hastily built villages. (II_ NYT: 25/10/2016)

Interestingly, typical collocates of 'ecological' in the sub-corpus have negative associations, such as 'disasters', 'crisis', 'catastrophe' and, 'panic', where climate (change) is construed as being responsible:

> Climate change threatens to provoke a new ecological panic. So far, poor people in Africa and the Middle East have borne the brunt of the suffering. (I_NYT: 13/09/2015)

While a number of shared collocates of 'migrants', such as 'refugees', 'asylum' 'seekers' as well as 'Europe', still point to discourses of the European refugees' crisis, 'climate' emerges as the most frequent pre-modifier of 'refugees' in this period. As a first observation, though, the quasi-totality of instances relates to states within the US, such as Louisiana, Virginia, Alaska. This seems to suggest a clear shift from representations of human displacement caused by environmental problems in Africa and the Middle East, either internally or towards Europe as discussed in period pre-Paris, to representations of climate-induced displacement within the US national border. In fact, in contrast to studies suggesting a Global South versus Global North dichotomization,[39] our corpus evidence shows that patterns of movement relate pre-eminently to internal movement within the territories of the US. Although the figure of the 'climate refugee' began to materialize at the end of 2014, a typical example being the following where the 'Pacific North West' is personified and construed as a 'potential climate refugee':

> Clifford E. Mass, a professor of atmospheric science at the University of Washington, writes a popular weather blog in which he predicts that the Pacific Northwest will be "a potential climate refugee" as global warming progresses. A Seattle resident, he foresees that "climate change migrants" will start heading to his city and to Portland, Ore., and surrounding areas. (I_NYT: 23/09/2014)

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[38] Baker et al., "A Useful Methodological Synergy?", 273–306; see also Elizabeth Thomson and Peter R. R. White, eds., *Communicating Conflict: Multilingual Case Studies of the News Media* (London: Continuum, 2008).

[39] Bettini et al., "One Step Forward, Two Steps Back? The Fading Contours of (In)justice in Competing Discourses on Climate Migration", *The Geographical Journal*, 183.4 (2016), 348-358.

It is undoubtedly in the following years and, in particular, in 2016, that discourses began to revolve around helping communities affected by extreme weather or rising seas as a consequence of climate change, to adapt to impacts of climate change:

> Shishmaref is not alone in facing a move because of the effects of climate change. In January, the federal government allocated $48 million to relocate Isle de Jean Charles, La., an island that is sinking into the sea. The effort earned the residents the title of the United States' first "climate refugees." (II_NYT: 20/08/2016)

As Felli fittingly observes, languaging climate migration as adaptation "radically transforms the location of social agency and, consequently, the responsibility for climate change consequences."[40] Once depicted as (potential) helpless victims of climate change-induced (forced) migration and, therefore, reliant on funding for adaptation (such as the 'resilience grants' mentioned above), they are now represented as "entrepreneurial migrants". Lexical items such as 'relocation' and 'resettlement' are typically co-selected with 'refugee' in this period. Quantitative data, in fact, suggest that both lemmas *relocat** and *resettl** follow a similar trend with a dramatic increase from Period I to Period II, the former from 0.06 to 0.04 and the latter from 0.02 to 0.45, and subsequent dramatic decrease reaching the initial levels in Period III. Of course, meanings of 'relocation' and 'resettlement' within this context are different from the legal definitions given by the United Nations High Commissioner for Refugees (UNHCR). Here meaning patterns hint at discourses of human mobility as an opportunity for vulnerable communities to cope with and adapt to the potentially disruptive impacts of climate change:

> That earth is now dying, drowning in salt and sinking into the sea, and she [Mrs Bourg] is ready to leave. With a first-of-its-kind "climate resilience" grant to resettle the island's native residents, Washington is ready to help. (II_NYT: 2/05/2016)

In spite of opposing voices within the communities themselves:

> When Schulte's research on Tangier came out, some of the islanders came up with the idea of distributing T-shirts that read "I refuse to become a climate-change refugee." […] "I don't know anything about climate change. But if calling me a climate-change refugee gets me a sea wall, then go ahead, call me a climate-change refugee." (II_NYT: 6/07/2016)

This should be worthy of note. In fact, there appears to be a constant tension between two diametrically opposed dimensions of adaptation. While it can help build resilience, as in the extract above, it can also undermine it, bringing new strain, as the following extract illustrates:

> A rapid deterioration of Antarctica might, in the worst case, cause the sea to rise so fast that tens of millions of coastal refugees would have to flee inland, potentially straining societies to the breaking point. (III_NYT: 20/5/2017)

While the ability of vulnerable communities to withstand climate change may be regarded as one key determinant of migration, understanding the ways media represent the issue is indeed crucial.

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[40] Romain Felli, "Managing Climate Insecurity by Ensuring Continuous Capital Accumulation: 'Climate Refugees' and 'Climate Migrants'", *New Political Economy*, 18.3 (2013), 337–363, 350.

5. Summary and Conclusions

Though we have by no means explored all the nuances and associations emerging from the news articles in our corpus, we have uncovered a few features worthy of note which shall be summarised and compared here.

Differences were found between the association between migrants and refugees on the one hand, and refugees and migrants on the other in the UK and the US press. While in the US sub-corpus the association between the two became stronger in time, suggesting mutually exclusive categories, the same cannot be said for the UK press, which might be due to a growing tendency to consider the terms almost interchangeable, or that migrants were gradually taking on a 'refugee' identity. What is more, the word 'refugee' often co-occurred with words in the semantic field of war and conflict in the US press, while this was not so in the UK press. The US press in particular focuses in labelling migrants in terms of their reasons for moving, and thus 'economic migrant' and 'migrant worker' are frequently found. While this is also true in the UK press, it applies only to Period I and to a much smaller degree.

In line also with Russo's findings,[41] despite being avoided in official literature, the label 'climate refugees' was found to be frequent in both the UK and the US press, particularly in the later period. This could perhaps be due to the fact that newsworthy stories were more specifically about climate change in the later period, while in earlier periods other news stories about different types of refugees and migrants competed for attention.

Both refugees and migrants tend to co-occur with verbs of movement where they are the grammatical Subject in both the US and the UK sub-corpora. In addition, and consistent with critical discourse studies on migration in general, they are also associated with large numbers. However, a closer look from a diachronic perspective suggests that in the UK press the association with large numbers weakens over time in the case of refugees. Large numbers of migrants and the associated representations conjure up negative associations, particularly in the conservative UK press. Similarly, doom-laden prose is present in the US press in Period I, giving rise to a securitisation discourse which instead only appears in the left-wing *The Guardian* in Period III and then only in attributed discourse. On the topic of security, it is noteworthy that the focus is on national security in the US press, while the UK press refers to security more generally due to few direct climate threats at present in the country, unlike the US. As regards areas affected by migration, the US sub-corpus has a particular emphasis on internal movement, especially from rural to urban areas while the UK sub-corpus has little specific focus on internal migration.

Discourses of the issue of migration as adaptation tend to be fairly positive in Period I in the UK press, particularly in *The Guardian,* though tensions emerge in the later period. This is also true of the US press, since while adaptation can foster resilience, it can also cause problems. Reference to resettlement and relocation is frequent in both the US and the UK press in Period II, as there begins to be more focus on helping communities to adapt to the effects of climate change that may also have strong implications for policy-making. Finally, there is the possibility that discourses in the UK press reserved in the past for refugees might be now shifting to migrants, while there has been increasing media interest in the issue of refugees, for example, the refugee crisis, rather than the people themselves.

To conclude, though the size of the corpus and the narrow time-scale involved perhaps prevent major shifts emerging in the discourse, some shared elements have been traced. We might also add that our findings support in part Nash's claim that no consistent discourse on climate change and migration has emerged.[42] The security discourse is present in both, the theme of migration as adaptation is

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[41] Russo, "Floating Signifiers", 195-201.
[42] Nash, "From Cancun to Paris", 54.

present, though with nuances shared by both US and the UK press. The overall representation of climate migrants and refugees has many similarities across the board, with differences between the UK and US press also being attributable to differences in national relevance given the proximity to effects of climate change. It will be left for further research to explore these elements in more detail and from more extensive sources.