


Terbit online pada laman web jurnal : <http://e-journal.sastra-unes.com/index.php/JILP>

 Fakultas Sastra Universitas Ekasakti	JURNAL JILP (JURNAL ILMIAH LANGUE AND PAROLE) VOLUME 3 NOMOR 2	
	ISSN : 2581-0804 (Media Cetak)	E-ISSN : 2581-1819 (Media Online)
Received: 30-06-2020	Revised: 30-07-2020	Available online: 31-08-2020

MODAL VERBS IN THE UN SECRETARY-GENERAL'S REMARKS ON CLIMATE CHANGE

Edfan Juliansyah^{1a}, Lia Maulia Indrayani^{2b}, Ypsi Soeria Soemantri^{3c}

^aFaculty of Cultural Studies, Universitas Padjadjaran, edfan19001@mail.unpad.ac.id

^bFaculty of Cultural Studies, Universitas Padjadjaran, lia.maulia@unpad.ac.id

^cFaculty of Cultural Studies, Universitas Padjadjaran, ypsi.soeria@unpad.ac.id

*Corresponding Author: Edfan Juliansyah

^aEnglish Post-graduate Program, Faculty of Cultural Studies, Universitas Padjadjaran, edfan19001@mail.unpad.ac.id

Abstract

This research was conducted to investigate the functions of modal verbs in the UN Secretary-General's remarks on climate change. Qualitative descriptive research design was employed in conducting this research. The benefits of this research are expected to contribute to the development of semantic research regarding modal verbs, and provide the understanding of the functions of modal verbs expressed in response to the climate change. The findings show that the functions of modal verbs expressed in the remarks are certainty, possibility, volition, and obligation. The speaker used the modal verb 'will' to express certainty, and volition, while the modal verb 'must', and the lexical modal 'have to' were used to express obligation. The speaker used the modal verb 'can' and the modal verb 'could' to express possibility. Based on the results of the research, certainty is the function that was mostly expressed in the remarks, followed by possibility, volition, and obligation. A lot of certainties expressed in the UN Secretary-General's remarks on climate change signifies that the speaker conveyed a lot of predictions or events referring to future time.

Keywords: Semantics, Modal Verbs, UN Secretary-General, Remarks, Climate Change

© 2020Jurnal JILP

I INTRODUCTION

Climate change is now faced by all human beings living in the Earth. According to the World Meteorological Organization (2019), the Earth are experiencing hottest temperatures in the past two decades. As a result, it causes dangerous heatwaves, floods, storms, and wildfires that remain a trail of fatality and destruction. In accordance with the phenomenon, notions about prediction, possibility, volition, and obligation are conveyed to make the Earth

recover better. In semantics, there is a category that deals with speakers' attitudes towards a state of affairs. It is modality.

According to Palmer (2013) semantic associates with the meaning of the lexical items. Meanwhile, pragmatics concerns with the contextual use of language (Nasir, 2017). Hence, modality is to be understood as a semantic category since modal verbs express a wide range of meanings (Orta, 2010). According to

<https://doi.org/10.36057/jilp.v3i2.398>

Jurnal JILP (Jurnal Ilmiah Languge and Parole) Vol. 3No. 2 (2020) ISSN : 2581-0804

This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/).

Thompson (2002), modality expresses various meanings depending on how they are used. Moreover, Palmer (2001) says that modality is the speaker's subjective opinion towards a topic.

Modality relates to and is constructed by modal verbs. Downing (2015) states that modality refers to a category which covers a variety of notions, such as probability, possibility, necessity, volition, obligation and permission. Moreover, Collins (2009) also suggests that modality consists of various semantic notions, such as possibility, necessity, ability, obligation, permission, and hypotheticality. Those notions can be expressed through many forms of modal verbs. Biber et al. (2010) mentions that there are nine essential constructions of modal verbs. Those are 'can', 'could', 'may', 'might', 'will', 'shall', 'would', 'should', and 'must'. Moreover, Downing (2015) states that there are other forms of modal verbs, namely the lexical-modal verbs and semi-modal verbs. The lexical-modal verbs can be composed of 'be' or 'have', such as 'have to', 'have got to', 'be bound to', 'be supposed to', 'had better', 'be likely to', etc. Meanwhile the semi-modal verbs consist of two verbs, namely negative forms of 'dare' and 'need', and 'ought'.

Since each of modal verbs has its meaning and function, every speaker expressing notions through any kind of modal verbs thus has intention to be conveyed to people. In terms of meaning and function of modality, Downing (2015) mentions two clusters of meaning. Those are the epistemic meaning and the deontic meaning. Palmer (2013) also claims that epistemic and deontic are two semantically basic kinds of modality which differ from one another. According to Downing (2015), the epistemic meaning refers to the assessment of possibility, certainty, and probability. In the second cluster of meanings, the deontic, a speaker brings an action by using modals to express different degrees of obligation, advisability, and permission. Both of the two clusters of meanings are linked by the concepts of necessity and possibility. Another type of meaning is dynamic modality. It expresses properties or dispositions of the subject referent, and it is less central since it is concerned with ability and natural tendency (Downing, 2015).

In order to investigate the functions of modal verbs concerning the phenomenon of climate change, the UN Secretary-General's remarks on climate change were used as the research object. The remarks delivered by the UN Secretary-General, António Guterres, were chosen since he was the representation of the organization's ideals and a spokesman for the interests of the global citizen. Moreover, there were various notions expressed through modal verbs in the UN Secretary-General's remarks on climate change. The modal verbs used in the remarks concerning the climate change have several semantic functions associated with the strategies implemented in the present and future life.

The studies related to the modal verbs' functions have been conducted by several researchers. There are two previous studies that closely relate to this research. Firstly, Nerter & Yankson (2014) examined the use of modal auxiliary verbs in the pronouncement of a Ghana's political party. This study explored the semantic basics of modal auxiliary verbs in the 2012's pronouncement of a Ghana's popular political party, namely the New Patriotic Party (NPP). They also demonstrated that modal auxiliary verbs had the propensity to reveal very clever meanings of the nature of political discourse. The research findings show that in the manifesto of the New Patriotic Party, the modal auxiliary verbs were used to give the meaning of promise, intention, obligation, and necessity.

In addition, Torabiardakani et al. (2015) analysed the functions of modal auxiliary verbs used by advance EFL Iranian students. The analysis only focused specially on nine modals' semantic functions. The findings reveal that the modal verbs which were used by the learners expressed ability, possibility, permission, obligation, necessity, volition, and prediction.

Based on the previous studies, it is concluded that the analysis of the functions of modal verbs in the remarks concerning the climate change has not been found. Therefore, this research aims to investigate the functions of modal verbs in the remarks on climate change delivered by the UN Secretary-General.

Hopefully, this research attempts to provide the theoretical and practical

<https://doi.org/10.36057/jilp.v3i2.398>

contributions. Theoretically, this research is expected to be useful in enriching the semantic analysis regarding the functions of modal verbs. Practically, this research is expected to provide

the understanding of the functions of modal verbs, especially those expressed in response to the climate change.

II RESEARCH METHODS

To meet the aim of the research related to investigating the functions of modal verbs in the UN Secretary-General's remarks on climate change, this research employed qualitative-descriptive research method. By using this research method, the functions of modal verbs investigated are described through textual interpretation.

The data were taken from the UN Secretary-General's remarks on climate change. The remarks were delivered by him in 2019. The utterances containing the modal verbs were selected to be analysed in terms of the modal verbs' functions.

In conducting this research, there were five steps done. The first step was watching the UN Secretary-General's remarks on climate change on <http://webtv.un.org/>. The remarks were delivered in 2019. The second step was listening to the speaker's utterances, then utterances were transcribed. The third step was collecting the utterances containing modal verbs. The fourth step was identifying the modal verbs in the collected utterances based on their functions. In this step, the categories of modality from Downing (2015) were applied. The last step was summarising the findings of the analysis.

III RESULTS AND DISCUSSION

Several modal verbs were found in the UN Secretary-General's remarks on climate change. Those are the modal verb 'will', 'must', 'have to', 'can', 'could', and 'would'. In the remarks, the modal verbs were realized in 51 clauses. The modal verbs expressed by the UN Secretary-General have various functions, such as certainty, possibility, volition, and obligation.

Based on the findings of the research, certainty is the function that is mostly found in the remarks, followed by possibility, volition, and obligation. The details of the results are presented below.

Obligation	Must	6	17.6%
	Have to	3	
Total		51	100%

Therefore, the discussion presented in this section is classified based on the functions of modal verbs expressed by the UN Secretary-General on his remarks concerning climate change.

1. Certainty

There are 19 clauses categorised into certainty. In the UN Secretary-General's remarks on climate change, the certainty includes prediction and assumption function. Those functions were expressed through the modal verb 'will' and 'would'.

Downing (2015) states that the modal verb 'will' expresses a prediction that refers to future time. Moreover, the modal verb 'will' also expresses the speaker's confident assumption since he/she is the observer. In this case, the modal verb 'will' can be glossed as 'I assume

Table 1, Total and Percentage

Functions	Forms	Total of Clause	Percentage
Certainty	Will	17	37.2%
	Would	2	
Possibility	Can	7	23.5%
	Could	5	
Volition	Will	11	21.7%

<https://doi.org/10.36057/jilp.v3i2.398>

that . . .’ (Downing, 2015). Contrarily, the modal verb ‘would’ is used when the orientation of certainty is in the past time.

The modal verb ‘will’ and ‘would’ used by the speaker in expressing certainties are presented and discussed below.

Table 2, Certainty

No.	Utterances
1.	“As climate change intensifies, we will ⁽¹⁾ find it harder to feed ourselves.”
2.	“Extinction rates will ⁽²⁾ spike as vital habitats decline.”
3.	“More and more people will ⁽³⁾ be forced to migrate from their homes as the land they depend on becomes less able to support them.”
4.	“This cost will ⁽⁴⁾ explode by 50% in the coming decade alone.”
5.	“Morocco is building a solar farm the size of Paris that will ⁽⁵⁾ power more than one million homes by 2020 with clean, affordable energy.”
6.	“So, we must ensure that that infrastructure is sustainable or we will ⁽⁶⁾ lock in a high-polluting dangerous future.”
7.	“We already see this injustice in the incessant and increasing cycle of extreme droughts and ever more powerful storms. Women and girls, in particular, will ⁽⁷⁾ pay the price. Not only because their lives will ⁽⁸⁾ become harder, but because, in times of disaster, women and girls always suffer disproportionately.”
8.	“It is important to note that, because carbon dioxide is long-lasting in the atmosphere, the climate change we are already seeing will ⁽⁹⁾ persist for decades to come.”
9.	“The summit next year will ⁽¹⁰⁾ come exactly one year before countries have to enhance their national climate pledges under the Paris Agreement. Only a significantly higher level of ambition will ⁽¹¹⁾ do. To that end, the summit will ⁽¹²⁾ focus on areas that go to the heart of the problem. The sectors that create the most emissions and the areas where building resilience will ⁽¹³⁾ make the biggest difference. The summit will ⁽¹⁴⁾ provide an opportunity for leaders and partners to demonstrate real climate action and showcase their ambition.”
10.	“Every day we fail to act is a day that we step a little closer towards a fate that none of us wants, a fate that will ⁽¹⁵⁾ resonate through generations in the damage done to humankind and life on earth.”

11.	“His efforts will ⁽¹⁶⁾ complement those of my special envoy for climate action, Michael Bloomberg, . . .”
12.	“I am calling on all leaders to come to next year’s climate summit prepared to report not only on what they are doing, but what more they intend to do when they convene in 2020 for the UN climate conference and where commitments will ⁽¹⁷⁾ be renewed and surely ambitiously increased.”
13.	“In Bangladesh the installation of more than four million solar home systems has created more than 115,000 jobs and saved rural households over 400 million dollars in polluting fuels. So, not only would ⁽¹⁸⁾ a shift to renewable energy save money, it would ⁽¹⁹⁾ also create new jobs, waste less water, boost food production and clean the polluted air that is killing us.”

In the utterances above, the modal verb ‘will’ was used to express certainties in the future. The speaker stated various conditions and situations referring to the future time. The conditions and situations in the future were predicted based on the cause-and-effect relation. In the remarks, the speaker has drawn the future effects caused by the current events, as in [1], [2], [3], [6], [7], [8], and [15].

The specific future time indicators stated by the speaker also strengthen that the modal verb ‘will’ in the utterances above expresses future predictions, as in [4], [5], [9], [10], [11], [12], [13], [14], and [17].

Furthermore, in [16], the speaker used the modal verb ‘will’ to express a future certainty based on his confident assumption. In this case, the speaker conveyed the assumption that he believed based on his observation.

In [18] and [19], the speaker used the modal verb ‘would’ in place of the modal verb ‘will’. It was used for expressing predictable certainties that began in the past. In the predictions of [18] and [19], the certainties were realized based on the cause-and-effect relation.

Therefore, in the utterances above, the speaker used the modal verb ‘will’ to express the certainties in the future events caused by current situations and actions, and based on the speaker’s experience. Meanwhile, the speaker used the modal verb ‘would’ to express the predictable predictions beginning in the past.

2. Possibility

There are 12 clauses categorised into possibility. In the UN Secretary-General's remarks on climate change, the possibility was only expressed through the modal verb 'can' and 'could'.

According to Downing (2015), the modal verb 'can' characterizes the possibility function. The modal verb 'can' expresses dynamic possibility. Thus, it is glossed as 'it is possible to . . .'. On the other side, the modal verb 'could', although it is a kind of past form, does not refer to the past time, but refers to the present state of affairs (Downing, 2015). As a result, Downing (2015) states that the modal verb 'could' is glossed as 'it is possible that . . .'. Therefore, the modal verb 'could' expresses the epistemic (predictive) possibility of an event occurring or being true (Downing, 2015).

The modal verb 'can' and 'could' used by the speaker to express possibilities are presented and discussed below.

Table 3, Possibility

No.	Utterances
1.	"Climate change is moving faster than we are, and its speed has provoked a sonic-boom SOS across our world. If we do not change course by 2020, we risk missing the point where we can ⁽²⁰⁾ avoid runaway climate change, with disastrous consequences for people and all the natural systems that sustain us."
2.	"Existing technologies are waiting to come online, (such as) cleaner fuels, alternative building materials, better batteries and advances in farming and land use. These and other innovations can ⁽²¹⁾ have a major role in reducing greenhouse gas emissions, so we can ⁽²²⁾ hit the Paris targets and inject the great ambition that is so urgently needed."
3.	"Richer nations must therefore not only cut their emissions but do more to ensure that the most vulnerable can ⁽²³⁾ develop the necessary resilience to survive the damage these emissions are causing."
4.	"Dear friends, enormous benefits await humankind if we can ⁽²⁴⁾ rise to the climate challenge."
5.	"If we pursue the right path, for example, for every dollar spent restoring degraded forests, as much as \$30 dollars can ⁽²⁵⁾ be recouped in economic benefits and poverty reduction."
6.	"How we heat, cool and light our buildings will need to be rethought so we waste less energy, and this is exactly where this conversation can ⁽²⁶⁾ become

	<i>exciting."</i>
7.	"I have heard the argument, usually from vested interests, that tackling climate change is expensive and could ⁽²⁷⁾ harm economic growth in future."
8.	"By 2030, the loss of productivity caused by a hotter world could ⁽²⁸⁾ cost the global economy 2 trillion dollars."
9.	"Climate-resilient water supply and sanitation could ⁽²⁹⁾ save the lives of more than 360,000 infants every year."
10.	"The International Labour Organization reports that common sense green economy policies could ⁽³⁰⁾ create 24 million new jobs globally by 2030."
11.	"By 2030, wind and solar energy could ⁽³¹⁾ power more than a third of Europe."

The modal verb 'can' in the utterances above expresses possibilities. Jaime & Pérez-Guillot (2015) says that the modal verb 'can' is one of the modal verbs that are mostly used to express general possibility. Moreover, the dynamic modal verb of 'can' has the meaning of being 'able' or 'to have the ability', and the function of 'possibility' is structured into those meanings (Huddleston & Pullum, 2002). The speaker stated the events that was possibly able to happen if the actions intended by the speaker were done, as in [20], [21], [22], [23], [24], [25], and [26].

Furthermore, the modal verb 'could' in the utterances above also expresses possibilities, but it tends to be predictive. In the utterances, the speaker stated the situations and events that are most likely to be happening in the future time. The specific future time indicators stated by the speaker also strengthen that the modal verb 'could' in the utterances above expresses predictive possibilities, as in [27], [28], [29], [30], and [31].

Thus, the speaker used the modal verb 'can' to express the general possibilities that happened if the intended actions were done. Meanwhile, the modal verb 'could' was used to express the future possibilities that were assumed by the speaker to occur or be true.

3. Volition

<https://doi.org/10.36057/jilp.v3i2.398>

There are 11 clauses categorised into volition. In the UN Secretary-General's remarks on climate change, the volition only includes intention function. The function was expressed through the modal verb 'will'.

According to Downing (2015), when a speaker expresses an intention, the intention occurs simultaneously with speech uttered, but the intended action is in the future. The modal verb 'will' used by the speaker to express volition is presented and discussed below.

Table 4, Volition

No.	Utterances
1.	"We need to rapidly shift away from our dependence on fossil fuels. We need to replace them with clean energy from water, wind and sun. Our cities and transport sectors will ⁽³²⁾ need to be overhauled. How we heat, cool, and light our buildings will ⁽³³⁾ need to be rethought so we waste less energy."
2.	"There are also promising signs that businesses are waking up to the benefits of climate action. Eighteen multinationals will ⁽³⁴⁾ shift to electric vehicle fleets. More than 400 firms will ⁽³⁵⁾ develop targets based on the latest science in order to manage their emissions. One of the world's biggest insurers, Allianz, will ⁽³⁶⁾ stop insuring coal-fired power plants."
3.	"The transition to a cleaner, greener future needs to speed up. We stand at a truly 'use it or lose it' moment. Over the next decade or so, the world will ⁽³⁷⁾ invest some 90 trillion dollars in infrastructure."
4.	"Dear friends, this is the message I would like to make clear in addressing the world leaders this month's in the General Assembly in New York, I will ⁽³⁸⁾ tell them that climate change's the great challenge of our time."
5.	"Keeping our planet's warming to well below 2 degrees is essential for global prosperity, people's well-being and the security of nations. That is why, next September, I will ⁽³⁹⁾ convene a climate summit to bring climate action to the top of the international agenda."
6.	". . . and my special advisor Bob Orr, who will ⁽⁴⁰⁾ help to mobilize private finance and catalyse bottom-up action."
7.	"We will ⁽⁴¹⁾ bring together players from the real economy and real politics, including representatives of trillions of dollars of assets, both public and private."
8.	"We will ⁽⁴²⁾ support all leaders who rise to the challenge I have outlined today."

In the utterances above, the modal verb 'will' was used to express volitions. The speaker stated many intentions to be done in the specific future time, as in [37], [38], and [39].

In addition, the reasons of why the things need to be done in future reconfirm that the modal verb 'will' in the utterances above expresses a lot of intention, as in [32], [33], [34], [35], [36], [40], [41], and [42].

Thus, in the utterances above, the modal verb 'will' was used to express various intentions to be done in the future since there were reasons behind the intentions themselves.

4. Obligation

There are 9 clauses categorised into obligation. In the remarks, the speaker used two forms of modal verbs to express obligation. Those are the modal verb 'must' and 'have to'.

Downing (2015) states that obligation can have the force of a direct command when it is expressed through the modal verbs 'must', and the addressee is positioned as subject. Moreover, the lexical-modal 'have to' also expresses an obligation. It is used when the obligation is external or not from the speaker's body or mind (Downing, 2015).

The modal verb 'must' and 'have to' used by the speaker to express volition are presented and discussed below.

Table 5, Obligation

No.	Utterances
1.	"We must ⁽⁴³⁾ halt deforestation, restore degraded forests, and change the way we farm."
2.	"So, we must ⁽⁴⁴⁾ ensure that infrastructure is sustainable or we will lock in a high-polluting dangerous future."
3.	"Governments must ⁽⁴⁵⁾ also end harmful subsidies for fossil fuels, institute carbon pricing that reflects the true cost of polluting greenhouse emissions and incentivizes the clean energy transition."
4.	"Richer nations must ⁽⁴⁶⁾ therefore not only cut their emissions but do more to ensure that the most vulnerable can develop the necessary resilience to survive the damage these emissions are causing."
5.	"That leaders must ⁽⁴⁷⁾ lead."

<https://doi.org/10.36057/jilp.v3i2.398>

6.	<i>"We must ⁽⁴⁸⁾ halt deforestation and restore degraded lands."</i>
7.	<i>"It is how we have to ⁽⁴⁹⁾ help to end wars, to stop diseases, to reduce global poverty and to heal the ozone hole."</i>
8.	<i>"Now we stand at an existential crossroad. If we are to take the right path, the only sensible path, we will have to ⁽⁵⁰⁾ muster the full force of human ingenuity."</i>
9.	<i>"The summit next year will come exactly one year before countries have to ⁽⁵¹⁾ enhance their national climate pledges under the Paris Agreement."</i>

The modal verb 'must' in the utterances above was used to express obligations. The speaker stated commands directly to the addressees, which were the subjects of the commands. In this case, the commands came directly from the speaker's own mind, then he

IV CONCLUSION

In the UN Secretary-General's remarks on climate change, the modal verbs expressed by the speaker have various functions, such as certainty, possibility, volition, and obligation. Those functions were expressed in several forms of modal verbs, namely 'will', 'would', 'can', 'could', 'must', and 'have to'. The modal verb 'will' was used to express certainty and volition while the modal verb 'must' and the lexical modal 'have to' were used to express obligation. The speaker used the modal verb 'can' and the modal verb 'could' to express possibility. Based on the results of the research, certainty is the function that was mostly expressed in the remarks, followed by possibility, volition, and

delivered the commands to the addressees for doing something, as in [43], [44], [45], [46], [47], and [48].

Moreover, to express obligations, the speaker also used the lexical-modal 'have to'. However, the lexical-modal 'have to' in the utterances above was used by the speaker since the intended obligations were not from the speaker's enforcement but from external things urging the speaker to command the addressees to do actions, as in [49], [50], and [51].

Therefore, the modal verb 'must' was used by the speaker when the obligations were personal and subjective. Meanwhile, the modal verb 'have to' was used by the speaker when the obligations were impersonal and objective.

obligation. A lot of certainties expressed in the UN Secretary-General's remarks on climate change signifies that the speaker conveyed a lot of predictions or events referring to future time.

The analysis of modal verbs does not only deal with their forms and function but also their value and orientation. Those two characteristics of modal verbs can also be analysed through other approaches. To analyse modal verbs, the source of data is not only limited to a kind of speech. Modal verbs can be analysed in any source of discourses since modal verbs are ubiquitous and are closely related to human's daily communication.

Bibliography

- [1]Biber, D., Conrad, S., & Leech, G., 2010. Student grammar of spoken and written English. Essex: Pearson Education.
- [2]Collins, P., 2009. Modals and quasi-modals in English. Amsterdam: Rodopi.
- [3]Downing, A., 2015. English grammar. 3rd ed. New York: Routledge.
- [4]Huddleston, R., & Pullum, G., 2002. The Cambridge grammar of the English language. Cambridge: Cambridge University Press.
- [5]Jaime, P.M., & Pérez-Guillot, C., 2015. A comparison analysis of modal auxiliary verbs in technical and general English. *Procedia Social and Behavioral Sciences*, 212, pp.292-297.
- [6]Nartey, M., & Yankson, F.E., 2014. A semantic investigation into the use of modal auxiliary verbs in the manifesto of a Ghanaian political party. *International Journal of Humanities and Social Science*, 4(3), pp.21-30.
- [7]Nasir, U., 2017. A pragmatics implicature function of Hillary Clinton and Donald Trump presidential debate. *Jurnal Ilmiah Langue and Parole*, 1(1), pp.167-173. <https://doi.org/10.36057/jilp.v1i1.17>
- [8]Orta, I.V., 2010. A contrastive analysis of the use of modal verbs in the expression of epistemic stance in business management research articles in English and Spanish. *Ibérica, Revista de la Asociación Europea de Lenguas para Fines Específicos*, 19, pp.77-95.
- [9]Palmer, F.R., 2013. *Modality and the English modals*. 2nd ed. London: Longman.
- [10]Palmer, F.R., 2001. *Mood and modality*. 2nd ed. Cambridge University Press.
- [11]Torabiardakani, N., Khojasteh, L., & Shokrpour, N., 2015. Modal auxiliaries and their semantic functions used by advanced EFL learners. *Acta Didactica Napocensia*, 8(2), pp.51-60.
- [12]World Meteorological Organisation, 2019. WMO confirms 2019 as second hottest year on record (Hitting the headlines article) [Online] (Updated Jan 15, 2020). Available at: <https://public.wmo.int/en/media/press-release/wmo-confirms-2019-second-hottest-year-record> [Accessed June 27, 2020]