CSTT’s scientific output remained steady in 2016, with 11 reviewed papers published in high-ranked tourism journals and a range of book chapters and conference presentations. Jeroen Klijs gained his PhD for the thesis “Tourism, income, and jobs: Improving the measurement of regional economic impacts of tourism”. For the third time, CSTT co-organised the Freiburg international workshop on sustainable tourism mobility in Germany. A special issue on the 2014 workshop was published in the Journal of Sustainable Tourism, and included CSTT contributions.

The work on Carmacal, the carbon calculator developed prior to 2016, continued, partly through CELTH and SIA funding. Carmacal won the prestigious World Travel & Tourism Council (WTTC) Tourism for Tomorrow Innovation Award 2016, which generated a large amount of media attention in April. Late 2016, Carmacal was also nominated as finalist for the 2017 UNWTO Award for Innovation in Research and Technology.

Early 2016, associate professor Paul Peeters continued his work as a consultant for one day a week for the European NGO Transport & Environment. He assists T&E in negotiation within ICAO/CAEP, who decided in September 2016 to install a new fuel efficiency standard for airliners effective from 2026 and a market based measure, CORSIA, that envisages to offset additional international emissions from 2021/2026. This project was financed by the T&E Brussels with an extended budget until February 2016.

Paul Peeters
Associate Professor Sustainable Tourism and Transport
The number of conference presentations was modest in 2016, compared to previous years. This was mainly due to the large staff engagement in the CARMATOP project.

Conference references


Panel member

- Peeters, P.M. (Speaker), Panel member discussing two sustainable tourism documentaries. Amsterdam/DocuDoca meeting, 30-09-2016.

Public lecture/debate/seminar

- Klijs, J. (Speaker), Toerisme, inkomen en banen; verbetering van de meting van de regionaal economische impacts van toerisme, Vakantiebeurs, Utrecht, Netherlands, 16-01-2016.
- Nawijn, J. (Speaker), Meaning of life, 10-08-2016.
- Peeters, P.M. (Keynote), Sustainable tourism. What you leave is just (NOT!) your footprints, VisitorNorway Workshop, The Hague, Netherlands, 15-09-2016.
- Peeters, P.M. (Participant), SECTEUR Workshop Tourism Sector: Climate information uses, needs and gaps, Paris, France, 28-10-2016.
- Piket, P.C. (Speaker), Direct and indirect influence of the European Union on the tourism sector, 30-06-2016.
A significant share of the CSTT income is generated by projects for third parties. In 2016, our project effort went into a range of running and new projects, some of them still linked to the CARMATOP project and its CARMACAL product. The overall trend of revenues is stable with current project value similar to 2015. The 'Projects' overview shows we were working on six projects with a total value of around € 280,000. Some of these projects will continue in 2017.

<table>
<thead>
<tr>
<th>Project title</th>
<th>SCITHOS (Smart City Hospitality)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>2016/2019</td>
</tr>
<tr>
<td>Budget</td>
<td>€ 211,000 (total CSTT/AfT share)</td>
</tr>
<tr>
<td>Clients</td>
<td>ERA-NET CoFund Smart Cities and Communities, JPI Urban Europe</td>
</tr>
<tr>
<td>Report/product</td>
<td>Publications to be delivered from 2016 onwards</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project title</th>
<th>Research study on Health tourism in the EU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>2016/2017</td>
</tr>
<tr>
<td>Budget</td>
<td>€ 54,000</td>
</tr>
<tr>
<td>Report/product</td>
<td>To be delivered in 2017</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project title</th>
<th>CARMACAL 2015-2016 refining and development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>2015/2016</td>
</tr>
<tr>
<td>Budget</td>
<td>€ 3,000</td>
</tr>
<tr>
<td>Clients</td>
<td>CELTH, ANWB, ANVR</td>
</tr>
<tr>
<td>Report/product</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project title</th>
<th>RAAK Top-up Carmatop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>2016/2017</td>
</tr>
<tr>
<td>Budget</td>
<td>€ 10,000</td>
</tr>
<tr>
<td>Client</td>
<td>SIA</td>
</tr>
<tr>
<td>Report/product</td>
<td>To be delivered in 2017</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project title</th>
<th>Consultant on aircraft CO₂ standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>2013-2017</td>
</tr>
<tr>
<td>Budget</td>
<td>€ 51,000</td>
</tr>
<tr>
<td>Clients</td>
<td>European Climate Foundation (ECF) / Transport and Environment (T&amp;E) / International Coalition for Sustainable Aviation (ICSA) / European Climate Fund</td>
</tr>
<tr>
<td>Report/product</td>
<td>See information below</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project title</th>
<th>Consultant NBAMA low carbon to Morocco project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>2016-2017</td>
</tr>
<tr>
<td>Budget</td>
<td>€ 5,000</td>
</tr>
<tr>
<td>Client</td>
<td>TEC Marseille</td>
</tr>
<tr>
<td>Report/product</td>
<td>Report in 2017</td>
</tr>
</tbody>
</table>
Consultant on aircraft CO₂ standards

Since March 2013, Paul Peeters is a member of the ICAO/CAEP Working Group 3, which is responsible for setting a new fuel efficiency standard for civil aviation. He does so for the International Coalition for Sustainable Aviation (ICSA). Paul presented several papers at international CAEP meetings and contributed to discussions, often taking a contrarian opinion towards the aviation industry about the fuel efficiency standard.

ICSA was established in 1998 by a group of national and international environmental NGOs as official observers. Since its inception, ICSA has contributed to CAEP’s work on technical means to reduce emissions and noise, the role of market-based measures, supporting economic and environmental analysis, modelling and forecasting, and ICAO’s carbon calculator. It has also been invited to present its views at ICAO workshops on carbon markets and bio-fuels, and has presented to the high-level Group on International Aviation and Climate Change (GIACC).

ICSA uses the expertise within its NGO membership to formulate its co-ordinated positions. To gain the broadest level of understanding and input from environmental NGOs, ICSA communicates with, and invites comment from, other NGO networks and bodies working in related areas. ICSA’s participation in ICAO and CAEP meetings is currently provided by the Aviation Environment Federation (AEF), the International Council for Clean Transportation (ICCT) and Transport and Environment (T&E).

See also www.icsa-aviation.org

2016 Highlight

The Freiburg workshops and output

July 2016, the third international workshop in the Black Forest was organised by CSTT, together with University of Surrey, Western Norway Research Institute, Linnaeus University, and University of Otago. The conference theme ‘Desirable Transport Futures’ was covered by 22 high quality papers, presented by researchers from many renowned tourism institutes. A Special Issue in the Journal of Sustainable Tourism is planned for 2017.

Meanwhile, the output of the Freiburg 2014 conference continued in 2016. After two papers in the Journal of Transport Geography (Gössling & Cohen, 2014) and Environment and Planning A (Cohen & Gössling, 2015), a special issue with nine workshop contributions and an editorial was published in the Journal of Sustainable Tourism (Vol. 24, Issue 3).

Two papers included CSTT contributions:


See also www.cstt.nl/freiburg2016
2016 Highlight

Carmacal – the carbon calculator for Tour Operators

Following its development in the RAAK-SME project CARMATOP (2013-2015), Carmacal has been applied internally by a number of Dutch tour operators in 2016. After winning the Dutch Green Feather award for best industry initiative, industry recognition continued internationally. In April, Carmacal won the prestigious World Travel & Tourism Council (WTTC) Tourism for Tomorrow Innovation Award 2016, which generated a large amount of media attention in April (see below). Late 2016, Carmacal was also nominated as one of three finalists for the 2017 UNWTO Award for Innovation in Research and Technology. Carmacal is still being funded by CELTH, ANVR, ANWB and others. In 2016 this resulted in a first software update (v1.1). The CSTT also received RAAK Top-up funding for ensuring continued development on Carmatop and Carmacal (see Projects).

One conference presentation and a book chapter centred on Carmacal:


Media attention for the project was high after Carmacal won the WTTC award in April:

- 28-4-2016, TravelMole: “Carbon calculator big news in Netherlands.”
- 13-4-2016, De Morgen: “Nederlanders weten straks hoe vervuilend ze reizen.”
- 13-4-2016, Metro Belgium: “Toerist reist liever goedkoop dan duurzaam.”
- 12-4-2016, Metro: “Zo schadelijk is je vakantie voor het milieu.”
- 12-4-2016, Columbus Travel: “Klimaatschade van jouw reis wordt zichtbaar.”
- 12-4-2016, NOS Journaal, 20:00, TV News item & interview with Frank Oostdam (ANVR).
- 12-4-2016, RTL Nieuws, 19:30, TV News item & interview with Frank Oostdam (ANVR).
- 12-4-2016, Omroep Max, TV item in Hallo Nederland with interview Paul Peeters (NHTV).
- 12-4-2016, Jeugdjournaal, “Hoe slecht is je vakantie voor het milieu?” Short TV item.
- 12-4-2016, BNR radio, Radio interview with Paul Peeters.
- 12-4-2016, NPO Radio2: “Binnenkort weet je hoe slecht jouw vakantie voor het milieu is.”
- 12-4-2016, NOS op 3/BNN: “Reisorganisaties gaan klimaatschade bij reizen zetten.”
- 12-4-2016, Trouw: “CO₂-label voor vakanties moet zich eerst bewijzen.”
- 12-4-2016, RTLZ.nl: “Hoe duurzaam is jouw vakantie? Dat kun je binnenkort checken.”
- 12-4-2016, BNR.nl: “Reisorganisaties meten milieuschade vakantiegangers.”
- 12-4-2016, AD.nl: “Reisbureaus gaan klimaatschade berekenen.”
- 12-4-2016, PowNed.tv: “Klimaatschade vakantie straks af te lezen.”
- 12-4-2016, Nederlands Dagblad: “Reisbureau wil effect op klimaat duidelijker tonen.”
- 12-4-2016, OmroepBrabant.nl: “Vakantie in een resort of op een camping? NHTV werkt aan tool voor bewuste vakantiekeuze.” (including audio interview with Paul Peeters).
- 12-4-2016, NOS.nl, “Reisorganisaties gaan ‘klimaatschade’ vakantie berekenen.”
- 12-4-2016, NU.nl: “Reisbureaus gaan klimaatschade per vakantie berekenen.”
- 12-4-2016, Volkskrant, p.1, “Op zoek naar de schoonste vakantie.” Frontpage article about carmacal and planned carbon information for consumers, with interviews of Paul Peeters and ANVR. See: “Reisbureaus berekenen hoeveel klimaatschade trip aanricht: Hoe schadelijk is uw vakantie voor het klimaat?”.
The scientific output comprised of 11 reviewed journal articles (including 2 official 2017 publications, online in 2016), 2 book reviews, 1 PhD (Jeroen Klijs), 6 book chapters, and 4 reports (see lists below). Several papers and book chapters have been submitted and are planned for publishing in 2017.

Citations of NHTV-affiliated articles by CSTT members in SCOPUS increased strongly in 2016.

**Table:** Citations received for CSTT authors in Scopus and GoogleScholar

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Paul Peeters</td>
<td>46</td>
<td>1445</td>
<td>17</td>
<td>3446</td>
<td>30</td>
</tr>
<tr>
<td>Jeroen Nawijn</td>
<td>24</td>
<td>216</td>
<td>7</td>
<td>593</td>
<td>13</td>
</tr>
<tr>
<td>Eke Eijgelaar</td>
<td>9</td>
<td>106</td>
<td>5</td>
<td>324</td>
<td>9</td>
</tr>
<tr>
<td>Martin Landré</td>
<td>9</td>
<td>43</td>
<td>4</td>
<td>No profile</td>
<td>-</td>
</tr>
<tr>
<td>Jeroen Klijs</td>
<td>5</td>
<td>8</td>
<td>1</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>Christa Barten</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>No profile</td>
<td>-</td>
</tr>
</tbody>
</table>


*Based on publications with NHTV affiliation.

**Journal articles**

Book reviews


Doctoral Thesis


Book chapters

Reports


Other professional publications

CSTT received a wide range of media coverage in 2016, and featured both in nearly all the main Dutch newspapers, as well as in radio and tv items. Topics varied from Carmacal and aviation technology to cruise ship pollution and holiday stress. Please see the Highlight item earlier in this report for a list of media items on Carmacal in April, following the winning of the WTTC award.

Public output & media references:

- 14-11-2016, VARA: Groen Licht. Kan je duurzaam op wintersport? NPO2 TV programme on ‘green’ consumer issues, with an item on the sustainability of winter sport holidays, including an interview of Paul Peeters (mins. 16:08-24:58, in Dutch).
- 26-9-2016, NOS nieuwsuur broadcast (min. 33:34-40:02) and NOS.nl item: Gaat een klimaatakkoord voor de luchtvaart het verschil maken? Items on the ICAO Assembly in Montreal late september, with interviews of Paul Peeters (CSTT) and Bas Eickhout (Greens, MEP).
- 26-9-2016, NPO Radio1, Nieuws en Co: Item on the ICAO Assembly, with interview of Paul Peeters (CSTT). 17:00-18:00 uur, min. 18:45-24:02.
- 24-9-2016, NRC Handelsblad, p.E8-9: CO\textsubscript{2}-neutrale groei? Een keiharde belangenstrijd. Article on the ICAO Assembly in Montreal late september, where a new efficiency standard for aircraft and a worldwide CO\textsubscript{2} compensation system (Global Market-based Mesasures, GMBM) will be determined. Includes interviews of Paul Peeters (CSTT), Bill Hemmings (T&E) and Bas Eickhout (Greens, MEP).
- 23-7-2016, Nederlands Dagblad: ‘Vakantie dichtbij kan cool worden’. Article on and interview with Paul Peeters about the need to reduce the impacts of flying and the trends of increased interest in faraway destinations (in Dutch).
- 26-6-2016, VARA Vroege Vogels: Duurzaam op vakantie. NPO Radio1 interview with Paul Peeters (CSTT) and Rene van der Duim (Wageningen UR) about sustainability aspects of travel and how to take a sustainable holiday (in Dutch).
- 2016, fairkehr, Nr.3/2016, p. 22-23, “Infografik Tourismus in Deutschland”. Special on domestic tourism and tourism policy, with infographic partly based on CSTT emission factors (in German).
- 2-6-2016, VARA Vroege Vogels: Vervuilende cruiseschepen. NPO Radio1 interview with Eke Eijgelaar (CSTT) and Arno Bonte (GroenLinks) about the discussion whether cruise ship arrivals in Rotterdam are in line with road traffic environment zone standards (Dutch).
- 30-5-2016, BNR Nieuwsradio: BNR Duurzaam, Minuut van de waarheid (factchecker). Radio interview with Eke Eijgelaar about the discussion whether cruise ship arrivals in Rotterdam are in line with road traffic environment zone standards (Dutch, min. 17:12-19:40).
- 28-5-2016, Het Parool, p. 24-25: Varende vervuiler moet schoner. Article on cruise ship air pollution in Amsterdam, with interview Eke Eijgelaar (Dutch).
- 28-5-2016, de Volkskrant, p. 35: Zet die duurzame cruise maar uit je hoofd. Article on the sustainability of cruise holidays, with interview Eke Eijgelaar (Dutch).
- 27-5-2016, Het Parool, p.34-35: Help, ik heb vakantie! Article on (how to avoid) holiday-choice stress, with interview Jeroen Nawijn (Dutch).
• 24-5-2016, NOS.nl: Mega-cruiseschip in Rotterdam is geen feest voor het milieu. Article on arrival of largest cruise ship of the world (Harmony of the Seas) in Rotterdam and its implications for the environment, with interview of Eke Eijgelaar (Dutch).

• 24-5-2016, RTL Nieuws: De ideale vakantie? ‘Die hoeft maar drie dagen te duren’. Article on holiday length and happiness, with interview of Jeroen Nawijn (Dutch).

• 21-5-2016, P+: 2000 vluchten op CO₂-uitstoot gecheckt. Interview with Paul Peeters about carmacal, sustainable travel and carbon offsetting (Dutch).

• 28-4-2016, TravelMole: “Carbon calculator big news in Netherlands.” Covering the media attention on CARMACAL, including interview excerpts with Paul Peeters.

• 27-4-2016, SustainNEWS: “Addressing Aviation as the Technology Myth Crashes.” Interview with Paul Peeters and James Higham (Otago University) on their Aviation Technology Myths paper.

• 18-4-2016, ScienceLine: “Too much air time: Efforts to curb aviation emissions remain stuck on the runway, grounded by social norms”. Article on aviation, emissions and behaviour, with expert interviews, amongst others Paul Peeters.

• 16-4-2016, Volkskrant, Steenkoolland wordt topattractie, Article on coal heritage in Limburg with interview of Jeroen Klijs.

• 12-4-2016, Omroep Max, TV item in Hallo Nederland with interview Paul Peeters (NHTV) & Frank Oostdam (ANVR), Min. 0:31-3:20.

• 12-4-2016, BNR radio, Radio interview with Paul Peeters.

• 12-4-2016, OmroepBrabant.nl: “Vakantie in een resort of op een camping? NHTV werkt aan tool voor bewuste vakantiekeuze.” Coverage of Volkskrant article including audio interview with Paul Peeters (in Dutch).

• 12-4-2016, Volkskrant, p.1, “Op zoek naar de schoonste vakantie.” Frontpage article about carmacal and planned carbon information for consumers, with interviews of Paul Peeters and ANVR (in Dutch). Also online version: “Reisbureaus berekenen hoeveel klimaatschade trip aanricht: Hoe schadelijk is uw vakantie voor het klimaat?”.

• 31-3-2016, Sustainability Leaders: “Interview: Paul Peeters on Tourism, Aviation and Climate Change”. Online sustainable tourism leadership platform.

• 27-3-2016, Vrij Nederland: “Waarom techno-optimisme even verleidelijk als misleidend is.” Interview with Paul Peeters on aviation’s technology myths (in Dutch).

• 26-3-2016, Noordhollands Dagblad: “Luchtvaart gedwongen CO₂ te verminderen.” Interview with Paul Peeters on aviation’s technology myths (in Dutch).
CSTT contributed to education by successfully guiding NHTV and WUR students with their (final) thesis or apprenticeship, see a selection of sustainability-related theses below. Harald Buijendijk (International Field Trip), Jeroen Klijs and Pieter Piket (Tourism Economics, International Field Trip) and Jeroen Nawijn (Principles of Tourism) and Paul Peeters (Principles of Tourism, Environment and Tourism) were all involved in the BSc Tourism programme, in close collaboration with Wageningen University and Research (WUR), co-organising modules, and giving lectures and tutorials. In this seventh year of its existence, the BSc attracted some 28 first grade students. Harald, Pieter, Eke and Jeroen Klijs co-organised the ITMC 2nd grade course Tourism Impact Studies, contributing a lecture and tutorials each. Harald also taught the 4th year ITMC course Sustainability in Tourism the Corporate Perspective to 4th year ITMC students.

### Thesis assignments & apprenticeships

<table>
<thead>
<tr>
<th>Supervisor</th>
<th>Student</th>
<th>Thesis title</th>
<th>Academy/Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eke Eijgelaar</td>
<td>Svenja Helbach</td>
<td>Mobility behavior of tourists in slow tourism destinations: An empirical study on slow tourism’s potential of increasing tourists’ involvement in pro-environmental behavior in terms of soft mobility</td>
<td>NHTV (ITTI)</td>
</tr>
<tr>
<td>Eke Eijgelaar</td>
<td>Theresia Lugert</td>
<td>Creating Justice in Tourism: A Case on Indigenous Communities on the Yucatan Peninsula</td>
<td>NHTV (ITTI)</td>
</tr>
<tr>
<td>Eke Eijgelaar</td>
<td>Patricia Netten</td>
<td>Colombia’s Caribbean Coast as an ecotourism destination: Investigating the relationship between satisfaction, loyalty and environmentally responsible behaviour of tourists</td>
<td>NHTV (ITTI)</td>
</tr>
<tr>
<td>Jeroen Klijs</td>
<td>Juultje Blom</td>
<td>Eco-efficiency at TUI Nederland: An analysis of the application of the eco-efficiency ratio on selected trips and its implications for decision making</td>
<td>BTO thesis</td>
</tr>
</tbody>
</table>
CSTT has been increasing its news output, particularly internally at NHTV. In 2016, it contributed seven posts on NHTV’s daily Insight newsletter, and several more on the Academy for Tourism newsletter. Thirteen news items were posted on the CSTT website (www.cstt.nl) apart from constant updating of new publications, conference and project information. Many publications are now also disseminated through several LinkedIn, academia.eu, ResearchGate and GoogleCitations profiles.

Employees working with CSTT in 2016 were: Eke Eijgelaar, Jeroen Nawijn, Martin Landré, Pieter Piket, Rob Bongaerts, Kim de Bruijn, Christa Barten, Jeroen Klijs, Harald Buijtenendijk, and Paul Peeters. Martin officially retired from NHTV, but will remain available for CSTT.
