



## A multi-space sampling heuristic for the green vehicle routing problem

Submitted by Christelle Guéret on Mon, 10/24/2016 - 18:44

Titre	A multi-space sampling heuristic for the green vehicle routing problem
Type de publication	Article de revue
Auteur	Montoya, Jose-Alejandro [1], Guéret, Christelle [2], Mendoza, Jorge E [3], Villegas, Juan G [4]
Pays	Pays-Bas
Editeur	Elsevier
Ville	Amsterdam
Type	Article scientifique dans une revue à comité de lecture
Année	2016
Langue	Anglais
Date	Septembre 2016
Pagination	113-128
Volume	70
Titre de la revue	Transportation Research Part C: Emerging Technologies
ISSN	1879-2359
Mots-clés	Green vehicle routing problem [5], hybrid heuristic [6], Matheuristic [7], Vehicle routing problem [8]
Résumé en anglais	<p>The green vehicle routing problem (Green VRP) is an extension of the VRP in which routes are performed using alternative fuel vehicles (AFVs). AFVs have limited tank capacity, so routes may visit alternative fuel stations (AFSs) en-route. We propose a simple yet effective two-phase heuristic to tackle the Green VRP. In the first phase our heuristic builds a pool of routes via a set of randomized route-first cluster-second heuristics with an optimal AFSs insertion procedure. In the second phase our approach assembles a Green VRP solution by solving a set partitioning formulation over the columns (routes) stored in the pool. To test our approach, we performed experiments on a set of 52 instances from the literature. The results show that our heuristic is competitive with state-of-the-art methods. Our heuristic unveiled 8 new best-known solutions, matched another 40, and delivered solutions with an average gap of 0.14% for the 4 remaining instances.</p>
URL de la notice	<a href="http://okina.univ-angers.fr/publications/ua15110">http://okina.univ-angers.fr/publications/ua15110</a> [9]
DOI	10.1016/j.trc.2015.09.009 [10]
Lien vers le document	<a href="http://www.sciencedirect.com/science/article/pii/S0968090X15003320">http://www.sciencedirect.com/science/article/pii/S0968090X15003320</a> [11]

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- [10] <http://dx.doi.org/10.1016/j.trc.2015.09.009>
- [11] <http://www.sciencedirect.com/science/article/pii/S0968090X15003320>

Publié sur *Okina* (<http://okina.univ-angers.fr>)