BRIEF SUMMARY

[0006] Drill pipe motion compensation may be performed without the inherent drawbacks of conventional motion compensation systems by supporting the weight of a drill pipe with a marine riser pipe and compensating for motion on the drill pipe by controlling tension on one or more of a plurality of wires couple d to the marine riser pipe. According to a first aspect, a method for performing drill pipe motion compensation includes supporting the weight of a drill pipe with a marine riser pipe and compensating for motion on the drill pipe by controlling tension on one or more of a plurality of wires coupled to the marine riser pipe. According to an embodiment, the marine riser pipe may be coupled to a well head on the seabed. In some embodiments, supporting the weight of the drill pipe with the marine riser pipe may include suspending the drill pipe on the marine riser pipe with a pipe holder. Supporting the weight of the drill pipe with the marine riser pipe may also include transferring the weight of the drill pipe to the marine riser pipe. According to an embodiment, transferring the weight of the drill pipe to the marine riser pipe comprises mechanically coupling to the pipe holder and the marine riser pipe a drill pipe support system, wherein the drill pipe support system and the pipe holder are configured to transfer the weight of the drill pipe to the marine riser pipe.

[0007] In some embodiments, controlling the tension on the one or more of the plurality of wires may include maintaining constant the tension on the one or more of the plurality of wires.

[0008] In some embodiments, the method may also include sensing signals that are indicative of a load on the drill pipe or tension on one or more of the plurality of wires. According to an embodiment, controlling the tension on one or more of a plurality of wires may include adjusting the tension on one or more of the plurality of wires in response to the sensing of the signals.

[0009] According to an embodiment, the method may also include configuring the plurality of wires to collectively hold the weight of both the marine riser pipe and the drill pipe. In addition, in an embodiment, for each of the one or more of the plurality of wires, the tension may be

controlled by one of a hydro-pneumatic tensioner and an electrical tensioner. In some embodiments, the method may also include coupling to the drill pipe a flexible tube, wherein the flexible tube flexes to accommodate for vessel movement and to reduce the amount of movement experienced by the drill pipe as compared to the vessel movement.

[0010] According to a second aspect, an apparatus includes: a drill pipe; a marine riser pipe configured to support the weight of the drill pipe; a plurality of wires coupled to the marine riser pipe; and one or more tensioners configured to compensate for motion on the drill pipe by controlling tension on one or more of the plurality of wires coupled to the marine riser pipe. The apparatus may also include a pipe holder configured to suspend the drill pipe on the marine riser pipe, wherein suspending the drill pipe on the marine riser pipe causes the marine riser pipe to support the weight of the drill pipe. The apparatus may further include a drill pipe support system coupled to the pipe holder and to the marine riser pipe, wherein the drill pipe support system and the pipe holder are configured to transfer the weight of the drill pipe to the marine riser pipe. According to an embodiment, controlling the tension on the one or more of the plurality of wires includes maintaining constant the tension on the one or more of the plurality of wires.

[0011] In some embodiments, the apparatus also includes one or more sensors coupled to the marine riser pipe and configured to sense signals that are indicative of a load on the drill pipe or tension on one or more of the plurality of wires. In one embodiment, the one or more sensors include at least one of an accelerometer and a load cell. The tensioners may be configured to adjust the tension on one or more of the plurality of wires in response to the sensing of the signals. According to an embodiment, each of the one or more tensioners may be one of a hydro-pneumatic tensioner and an electrical tensioner. In another embodiment, the plurality of wires are configured to collectively hold the weight of both the marine riser pipe and the drill pipe, and wherein the marine riser pipe is coupled to a well head on the seabed. According to some embodiments, the apparatus also includes a flexible tube coupled to the drill pipe, wherein the flexible tube is configured to flex to accommodate for vessel movement and to reduce the amount of movement experienced by the drill pipe as compared to the vessel movement.

[0012] According to a third aspect, an apparatus includes a pipe holder coupled to a drill pipe and a marine riser pipe. The pipe holder may be configured to suspend the drill pipe on the marine riser pipe. The apparatus also includes a drill pipe support system coupled to the pipe holder and to the marine riser pipe, wherein the drill pipe support system and the pipe holder are configured to transfer the weight of the drill pipe to the marine riser pipe.

[0013] As used in this disclosure, the term "blowout preventer" includes, but is not limited to, a single blowout preventer, as well as a blowout preventer assembly that may include more than one blowout preventer (e.g., a blowout preventer stack).

[0014] The term "coupled" is defined as connected, although not necessarily directly, and not necessarily mechanically; two items that are "coupled" may be unitary with each other. The terms "a" and "an" are defined as one or more unless this disclosure explicitly requires otherwise. The term "substantially" is defined as largely but not necessarily wholly what is specified (and includes what is specified; e.g., substantially 90 degrees includes 90 degrees and substantially parallel includes parallel), as understood by a person of ordinary skill in the art. In any disclosed embodiment, the terms "substantially," "approximately," and "about" may be substituted with "within [a percentage] of" what is specified, where the percentage includes .1, 1, 5, 10, and 20 percent.

[0015] Further, a device or system that is configured in a certain way is configured in at least that way, but it can also be configured in other ways than those specifically described.

[0016] The terms "comprise" (and any form of comprise, such as "comprises" and "comprising"), "have" (and any form of have, such as "has" and "having"), "include" (and any form of include, such as "includes" and "including"), and "contain" (and any form of contain, such as "contains" and "containing") are open-ended linking verbs. As a result, an apparatus that "comprises," "has," "includes," or "contains" one or more elements possesses those one or more elements, but is not limited to possessing only those elements. Likewise, a method that "comprises," "has," "includes," or "contains" one or more steps possesses those one or more steps, but is not limited to possessing only those one or more steps.